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1913

REPORTS

OF THE

Pennsylvania State Bee-Keepers' Association

BEING REPORTS OF THE

Fifth, Sixth, Seventh and Eighth Annual Conventions and Two Summer Meetings With the List of Officers of Each Year

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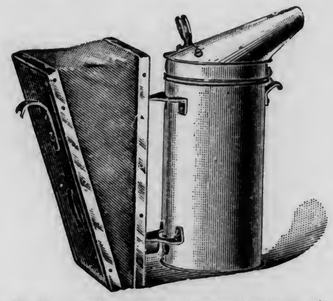

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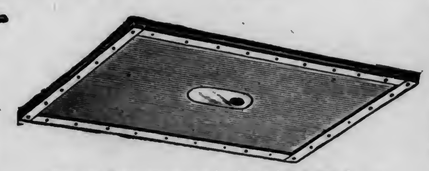

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I have delayed a reply until I could tell you that I saw definite results from them. If you should have one or two more of them, I shall be glad to have them at any time to introduce into another apiary which I have.

My bees are doing well this year. My only trouble is, that I have not the time to look after them, but I must take it. With highest regards, I am,

Cordially yours,
H. A. SURFACE,
Economic Zoologist.

MR. J. R. RAMBO,
Collingdale, Pa.

Dear Sir:—It may interest you to know that the number of queens which you have supplied to me have turned out well. I am much pleased with the results. My bees have gradually come to be bright yellow through their breeding. The bees are easily handled and are producing so much honey that it is difficult for me to get rid of it to my friends.

Very truly yours,
W. P. WILSON,
34th St., Philadelphia, Pa.

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Dear Sir:—The queens have proved to be purely mated and are extra good layers, but we have not had any honey flow since I got them, therefore, I am unable to say what their workers progeny will do in the way of gathering. Less than one-half crop honey here. Everything dying out for want of rain.

Yours truly,
THOMAS BRODERICK.

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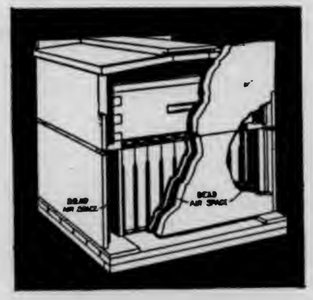

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1913.

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Report of the
Fifth Annual Convention
PENNSYLVANIA STATE BEE-KEEPERS' ASSOCIATION.

The Association held its fifth Annual Convention in the Court House, at York, Pennsylvania, November 12th and 13th, 1908, the first session being called together in the Grand Jury Room, about 1:30 P. M., by the President, Prof. H. C. Klinger, and opened with prayer by George H. Rea.

Fifteen members responded to the roll-call, with over thirty persons present.

The minutes of the Fourth Annual Meeting and of the Executive Committee, held at the same time, were separately read and approved.

Executive Committee Minutes.

A meeting of the Executive Committee of the Pennsylvania State Bee-Keepers' Association was held during an interim of the convention held in the Capitol Building, Harrisburg, Pa., on Oct. 31, 1907, Chairman Klinger and Messrs. Green, Miller, Rea and Satterthwait present.

It was proposed that the Association should submit a bill to the General Assembly at its next session providing for a State Inpector to investigate and suppress diseases among bees in our State. House Bill No. 633, Session of 1907, was reviewed and the committee unanimously agreed that this bill was satisfactory in its entirety and would have preference in 1909 as a bill approved by the Committee on Agriculture in 1907.

The matter of program for the convention to be held at York in October, 1908, was discussed, and it was mutually agreed that it should be strong in its bearing on Foul Brood legislation and on the local significance of the disease.

The care and marketing of honey was considered an appropriate subject to be included on our program. The committee then adjourned.

(Signed) A. F. Satterthwait, *Sec.*

The report of the Secretary was next presented, and approved as read, as follows:

No pretention has been made to keep the work of the secretaryship and treasurership separate, in the overlapping of correspondence. About two hundred communications have been received and about two thousand sent out. Of those sent out, about two hundred were for the purpose of laying before our State Bee-Keepers the possibility of electing Prof. H. A. Surface to the Board of Directors of the National Bee-Keepers' Association. About two hundred and fifty were invitation notices of our York Conference. The remaining were of general correspondence, notices of the expiration of the dues and acknowledgments of dues received.

The fact that this Association does not fix the time at which one's membership ceases, relative to date of the expiration of the dues, while

the National Association positively and punctually terminates one's membership upon the expiration of the dues causes unpleasant misunderstandings as to the discrepancies in date shown by the receipt cards of our respective Associations.

About thirty new members have been enrolled since our last Convention. It becomes imperative that our Association must reach the many non-associated bee-keepers of the State before we can be sure of the enactment of our bill into law; in other words, by Feb. 1, 1909. How shall this be accomplished? Would it be practicable to write to each of the fourteen hundred Granges of our State for a list of their members, with addresses, who actually keep bees? If so, should we not also write to the Farmers' Alliances and to horticultural associations for like records of bee-keepers?

We were advised by Brother Holterman, at the National Convention at Harrisburg last year, that each member of the General Assembly should be shown that our needs are urgent and rational, and their support should be definitely solicited. Might this not best be accomplished by having our members volunteer to see personally the legislators of the several counties in which we are represented, and depend on correspondence with those alone who are personally inaccessible?

By correspondence the Secretary-Treasurer secured authority from the Executive Committee to publish reports of the second, third and fourth Annual Conventions, prior to the present Convention, at a cost of ninety-eight dollars ($98.00) for five hundred (500) copies. He likewise secured further authority to solicit and print advertisements with reports, at the rate of $5.00, $3.00, $2.00 and $1.50 per page, half, third, and quarter-page, respectively. An additional charge of one dollar ($1.00) per page was made by the Evangelical Publishing Co., for the advertising matter. From the one hundred and seventy parties invited to advertise in this report, ten orders were received, amounting to seven pages, at a total of $36.00, which it will be observed, after the one-dollar-per-page charge is deducted, reduces the cost of printing the five hundred reports from $98.00 to $69.00.

Believing it might be well to circulate a copy of House Bill 633, Session of 1907, as widely as we are able to find bee-keepers, the secretary has secured the option on using the form now set up for the reports.

The Secretary had contemplated publishing a list of members of our Association with the reports, but as only about two-fifths of our list of bee-keepers are paid up, and several who have not paid up probably feel that they are not members, he felt that it was expedient to avoid publishing a list until the Association shall have definitely specified what shall constitute membership.

The matter of gathering statistics is of such character as to seem to warrant the appointment of a small committee to formulate the needs of the Association along the line of statistics. It should be within the province of the committee to recommend what part of the reports secured shall be for review in the following conventions alone, and what shall be published in the annual reports. Immediate action should be taken to assemble such an array of accomplishments in the bee industry in Pennsylvania as to hold the attention of our least interested assemblymen.

The Secretary wishes to state that he has had the united co-operation of each of the Executive Committee.

(Signed) A. F. Satterthwait.

The Treasurer made report as follows:

The Treasurer begs leave to submit the following report:

RECEIPTS.

Received of Ex-Treasurer Fox,	$ 71.45	
Dues,	156.50	
Interest on Deposit,	2.80	
Advertising, Fred W. Muth Co.,	1.50	
D. C. Kauffman,	1.50	
J. R. Rambo,	5.00	
Total Receipts,		$238.75

EXPENDITURES.

Dues to National Association,	$ 78.00	
Postage and Envelopes,	17.28	
Expressage,	1.33	
Printing and Stationery,	4.50	
Salary of Secretary-Treasurer,	20.00	
Total Expenditures,		$121.11
Balance in Hand,		$117.64

ASSETS.

Advertisements: Dadant and Sons,	$ 5.00	
General Chemical Co.,	5.00	
W. T. Falconer Mfg. Co.,	5.00	
A. I. Root Co.,	5.00	
Cleaver and Green,	5.00	
Geo. W. York and Co.,	1.50	
Aliso Apiaries,	1.50	
Total Assets,		$ 28.00
		$145.64

LIABILITIES.

Unpaid Dues to National Association,	$ 2.50	
Charges on Printing Reports, Ev. Pub. Co.,	105.00	
Total,		$107.50
Ultimate Balance,		$ 38.14

Respectfully,

(Signed) A. F. Satterthwait, *Treasurer.*

A motion was presented and supported to the effect that the Treasurer's report be accepted and filed.

Address of the President.

H. C. Klinger, Liverpool, Pa.

Members of the Pennsylvania State Bee-Keepers' Association:

Ladies and Gentlemen: It affords me great pleasure to look into your faces again after a lapse of another year, at the end of another season, "When the bees are in the hive and the honey's in the comb"; when the honey's on the market and the money's in the home.

Without a question there is no other pursuit in the world that arouses as much interest and kindles a keener enthusiasm than that which has called us together.

The bee fever is one of the worst in the catalog of maladies. It is malignant in form, often becomes chronic and incurable, but is seldom attended with any serious results.

The wonderful structure of the bee, and its more wonderful instinctive endowment, the beautiful mechanism of the comb which has puzzled mathematicians and the structure and life of the many flowers from which he gains his livelihood, furnish a source of delightful research which is unfathomable and sublime and cannot help but lead the student nearer to nature's Creator and cause him to exclaim like the astronomer: "Oh God! I think thy thoughts after thee."

Does keeping bees pay? That's "how we look at it." To the man whose delight is amassing wealth, looking on its golden color and listening to its clink as it falls into the coffer, it doesn't seem to pay.

There are many men who are engaged in occupations from which they wish to retire after they have accumulated a fortune and then engage in some pleasant pursuit. Apiculture is always a pleasant pursuit. In this, the bee-keeper has always the advantage, in that his life work affords continuous pleasant diversion.

To me the sight of yellow "baby-beauties" taking their play spell on a sunny afternoon, the hum of an excited swarm issuing from a hive or the contented murmur of millions coming in from a buckwheat or clover field are sounds and sights more pleasurable than the getting of many dollars.

But apiculture has its business side as well as its pleasure. It is demonstrated beyond a doubt by the success of quite a number of our bee-keeping friends that as a specialty or single vocation it pays in dollars.

In primitive bee-keeping days, and not so many years ago, it was a question whether it was possible to make a living by keeping bees alone. But with the adaptation of new methods, new devices and the proper study and location of yards, failures are lessened and apiculture has been placed on a self-sustaining foundation.

We are living in an age that is known for its intensity. Practical economists in all lines of work are devising ways by which the largest amount of any article can be produced at the least expense and smallest amount of time. Curves in our railroads are straightened to shorten distances and the speed of trains increased to the danger point. The farmer, even, who is usually supposed to be the last to catch an inspiration, has caught the spirit. He plows a smaller acreage of soil, fertilizes it heavily, cultivates and plants it carefully and raises as much on one acre as he did on two. Shall we, too, practice the same principle? Shall we try to see how many colonies we can keep, or shall we contract the size of our apiaries and place on them the high pressure methods of labor? This is a question well worth thinking about.

A word as to our Association. A question which is an Americanism is often asked: Does it pay to belong to the Pennsylvania State Bee-Keepers' Association? What causes the great friendship among bee-keepers? There seems to be a sort of affinity which prevails among the brethren, which springs up immediately when two recognize that they both are interested in keeping bees. I cannot account for it except by thinking that all persons are not adapted by nature to follow this profession and that in the adaptation there is a peculiarity that makes us all by nature of a kindred spirit. To meet these people—you—in annual conventions, grasp your warm hands, exchange ideas, relate experiences and work side by side for the elevation of the profession,

brings to me a satisfaction and pleasure that is far greater than the annual dues.

There are those who think there should be a direct return on the investment of the dollar. There are direct benefits if we want them, but the principle thing is the help it gives indirectly by lifting apiculture in Pennsylvania to a recognized vocation in the State.

Of the dues, one-half goes to the National Bee-Keepers' Association and secures membership in that, as well as in the Pennsylvania State Bee-Keepers' Association and obtains from it defense of its members that are wronged. It also brings to each member the papers and reports of the National and its conventions, which are in themselves valuable. The other half makes possible these meetings and printed reports which every member receives.

Let us work for the promotion of apiculture in the State, increase our membership and secure the passage of laws that will protect our interests and save us from the scourge of bee diseases and make permanent our life work.

The President then advocated the handing in to the Convention written questions which members wished answered, and urged that each individual gather in many bee-keepers at once, to help win, by systematic activity in seeing legislators, this proposed bill for the control of bee diseases. He then read some figures from the "Technical World."

Mr. J. W. Saunders asked whether there was any reason why the place of our next meeting might not be determined before the election of officers, in order that a vice-president might be selected from that vicinity.

Mr. Fox asked that the discussion of this matter be deferred and that the visitors be considered in giving Dr. Phillips an immediate opportunity to deliver his address, entitled

A General Discussion of Apiculture in the United States.

By E. F. Phillips, Ph.D.

Few persons realize the magnitude, importance and possibilities of the present bee-keeping industry in the United States. Although the total value of bee products is small as compared with the value of the products of many other branches of agriculture, it nevertheless has an importance which should not be overlooked. The object of this paper is to review the present status of the industry with a view to pointing out where we may look for advancement.

Few rural pursuits have made greater progress during the past half century than has this one. Before that time the bees of this country were kept in box hives, and as a result the annual average crop of honey per colony was small. With the invention of movable-frame hives by Langstroth in 1851, it became possible to care for bees properly and to manipulate in such a way as to get the best crop.

According to the census of 1900 the average number of colonies on farms reporting them was 5.8016, valued at $14.40—a very small investment. In some recent work of this bureau it has been found that in the State of Massachusetts the average number of colonies reported was 5.5 per bee-keeper. The last figure should not be taken as an

index to the condition in the whole country, for as one goes farther west the holdings are found to be larger. In California, for example, while there are some small apiaries, the majority are quite large, and the average is several times that of Massachusetts.

The number of men who rely solely on the production of honey and wax for a livelihood is rather small, and most of the extensive producers of the west carry on some other business, at least for the part of the year when the bees are less active. The reason for this is found in the nature of the industry. Any location is limited as to the number of colonies of bees which it will support, and in consequence a bee-keeper must either carry on some other business or establish numerous outapiaries to enable him to keep bees enough to make it an occupation which will support him.

Then, too, bee-keeping is taken up by many as a recreation or a subject of nature study. Such persons do not wish to make it their sole or main occupation. Many farmers also keep a few colonies of bees and add to their income to some extent in that way. It is obvious that bee-keeping must continue to be an avocation in the majority of cases.

This brings up for consideration a question which has been much discussed by those interested in bringing about an advance in the industry: Shall an attempt be made to increase the number of bee-keepers, or to make better ones of a smaller number? Bee-keepers who follow the pursuit on a commercial scale are usually anxious that there be no increase in the number engaged in the business, but rather a decrease, with an accompanying advance in the proficiency of those so engaged.

It frequently happens that a local market is ruined, temporarily at least, by some uninformed bee-keeper who keeps a few colonies and sells a poor grade of honey for a ridiculously low price, thus making it almost impossible for the up-to-date bee-keeper to sell his honey for what it is worth in the same community.

The main objection to numerous small bee-keepers, rather than fewer and more expert ones deeply engaged in the industry, is, that when the larger number is interested it cannot be hoped that all will become proficient. Under normal circumstances this matters little, since any one has a right to neglect his bees if he so desires, but when some contagious disease is present in a region this becomes a serious matter. The expert bee-keeper cannot hope to rid his bees of disease if there are a great many unqualified bee-keepers in his neighborhood. Under such a circumstance—which unfortunately is becoming quite general in this country—the negligent bee-keeper keeps property which, if diseased, constitutes a nuisance, and is a constant menace to the progressive man, for it is impossible to tell when neglected colonies may become infected.

It is very difficult to estimate accurately the annual value of the products of the apiary, but from various sources of information it is reasonable to suppose that the value of the honey produced annually in the United States is on the average about $20,000,000, and of wax about $2,000,000.

As nearly as can be learned, the number of sections for comb honey manufactured annually by supply dealers is between 60,000,000 and 75,000,000, and that may be considered as a fair estimate of the

average number of the pounds of comb honey produced in the United States, since relatively few sections are exported. Extracted honey is produced more extensively, and it is safe to say that the annual crop is three or four times that of comb honey. Taking into consideration, also, the chunk honey sold and the honey not marketed, but used in home consumption, the estimate of $20,000,000 is none too high.

The production of honey in the United States, according to the census of 1850, 14,853,790 pounds, in 1860, 23,366,357 pounds and in 1900, 61,196,160 pounds. In 1855, 5,245,908 pounds were imported at an average price of 2.63 cents, and in 1907, 2,108,064 pounds at an average price of 3.40 cents. In the year ending June 30, 1883, 168,879 pounds of wax were imported at an average price of 24.7 cents. In the year ending June 30, 1908, 671,526 pounds were imported at an average price of 29.0 cents. In the year ending June 30, 1889, we had a tariff of 20 per cent. ad valorem on wax and imported 75,951 pounds at an average price of 15.5 cents; in the year ending June 30, 1890, with same tariff on wax 126,319 pounds were imported, at an average price of 16.1 cents; and in the following year, 379,135 pounds with wax on the free list.

Our average price of wax is thirty cents. Who sets this price? Cuba. Cuba supplies 45.7 per cent. of our importations of honey and 39.5 per cent. of our importations of wax; Mexico, 41.1 per cent. of honey and 6.2 per cent. of wax; Santo Domingo, 1.9 per cent. of honey and 8.2 per cent. of wax; Hayti, 4.2 per cent. of honey and 8.6 per cent. of wax; and all other countries, 7.1 per cent. of honey and 37.5 per cent. of wax. We absorb 15 per cent. of the Cuban output and 50 per cent. of the British output. Our tariff on Cuban wax is one and two-thirds cents per pound. The selling price of wax in Cuba is twenty-eight cents. That would be our selling price, were it not that we have this duty on their shipments. Tariff is now open to re-adjustment. The Ways and Means Committee will consider tariff late this month. If the tariff is removed, we will get all instead of the 15 per cent. of the Cuban honey, and we will get their price, four cents.

The honey bee is of great value as a pollenizing agent, and in estimating the value of the industry in adding to the resources of the country this phase of the subject must be included. Other insects, of course, aid in this way, but the honey bee occupies a peculiar position in a consideration of this subject.

Waite (The Pollination or Pear Flowers. Bul. No. 5, Division of Vegetable Pathology) mentions a large number of species of insects which visit pear blossoms, but says: "The common honey bee is the most regular and important abundant visitor, and probably does more good than any other species." Mueller, in his very comprehensive study of the fertilization of flowers, credits the Apidæ with 41.31 per cent. of the 6,231 visits observed and speaks of the honey bees and the bumblebees of the genus Bombus as playing "by far the most important part in fertilizing our (German) indiginous flowers." On the other hand, Britton and Viereck (Fifth Report of the Connecticut State Entomologist) attempt to show that the honey bee is not so important as has generally been claimed by horticulturists and entomologists. They find that "honey bees were exceedingly scarce in comparison with other species of Hymenoptera—or in fact with other insects. It seems fair, to, that on account of their great numbers the

small bees belonging to the Halictidæ and Andrenidæ are more important agents in carrying pollen than has been supposed, and in the vicinity of New Haven during the seasons of 1904 and 1905 were of far greater benefit in pollenating the flowers of the plants from which they were collected than were the honey bees.''

Earlier in the paper they say: ''It is not known to the writers that bees are kept in the immediate vicinity of the experiment station; there are several hives less than two miles away. Wild honey bees are probably not very abundant so near the city.''

There are various facts which should be taken into consideration in connection with this paper—facts not mentioned by the authors. In the first place, comparatively few honey bees are kept in the part of Connecticut around New Haven. Furthermore, a scourge of bee disease is said to have decimated the bees of Connecticut some years ago, and doubtless this decreased the number of bees in a wild state as much as it is known to have done in the case of bees in hives. The principle point which should be considered, however, is that the winter of 1903-4, just before these counts were made, was exceedingly severe, and 75 per cent. of the colonies of honey bees in New England are reported to have died.

While in the particular cases observed by these authors the honey bee was of little value as a pollenizer, the ease with which an enormous number of honey bees could be brought to the aid of the orchardist places this species in a class by itself.

Fruit growers as a rule recognize the value of the honey bee to their industry. Taking into consideration the insurance of pollenation by transporting colonies of bees to the places where their services are needed, it is safe to say that the indirect benefit of the bee-keeping industry annually adds to the resources of the country considerably more than the amount received from the sale of honey and wax.

There are several sources of great loss to bee-keepers which might be eliminated to a large extent by careful manipulation, but there is much work which must be done before bee-keepers are able to overcome all these difficulties. Certain losses are expected regularly, and, while some do their utmost to overcome them, an annual loss must figure in their calculations.

Swarming. By careful manipulation and the use of large hives swarming may be largely controlled. It is doubtless true that swarms aggregating in value $1,000,000 are lost every year. This loss may be considerably reduced.

Winter losses. The losses in winter are considerable, due largely to starvation, dampness, too long a time without a cleansing flight, or extreme cold weather. An even temperature of about 45 degrees F. and a dry atmosphere are considered best, and the best method of obtaining these conditions is an individual problem. ''Winter loss'' is in many cases caused by disease, which so weakens the colony during the summer that it is not able to survive the winter. In such cases the bee-keeper is usually ignorant of disease.

Waste of wax. No other manipulation of the apiary is so primitive as wax extraction and nowhere is there more room for improvement. The amount of wax wasted by inadequate methods of extraction amounts to thousands of dollars annually. With the advent of the movable-frame hive and honey extractor, it became orthodox to continue the use of combs year after year. At the same time it may be that bee-keepers have formed the habit of using their combs in this way, and in consequence are losing wax. It must not be overlooked that it is part of the life activity of bees to build wax, and in working bees to get the maximum financial return from them it may be desirable to allow them to spend some energy on wax production. A better method for wax extraction would not only mean greater profits, but would be a gigantic step in advance in bee-disease eradication.

Enemies. The wax moths (Galleria mellonnella L. and Achroia grisella Fab.) rarely trouble thrifty colonies, and therefore, are not dreaded by progressive bee-keepers in the colonies; they do, however, often destroy stored combs.

Diseases. From the standpoint of present need there is no question in apiculture which at all compares in importance with the control of bee diseases. There are now recognized two distinct brood diseases which are contagious and which annually cause enormous losses to those engaged in the industry. There is reason, too, to believe that these diseases are spreading to new localities at a rapid rate, and unless vigorous steps are taken there can be no doubt that in a few years they will be distributed to every part of the United States.

The apathy of bee-keepers, as a class, to these scourges is remarkable, in view of the fact that information is available which should point out the dangers now incurred by inadequate efforts toward the control of these pests, or in most cases by no effort at all.

Statistics of the New York Department of Agriculture show that from about 1897 to 1905, $110,491 were lost in colonies which were destroyed by or destroyed on account of European foul brood in that State. In 1899 alone the loss was placed at $25,420. This being the loss in a few counties in one State, the loss may well be estimated in the United States at $2,000,000 annually.

In discussing the needs of the bee-keeping industry these may perhaps be best divided under three headings,—scientific, economic and educational. In naming them it does not follow that all are absolute necessities before the industry can reach its highest perfection, but there are many lines which should be taken up which, while not necessary, are very desirable in order that the men engaged in the industry may be well informed concerning the various phases of the science.

Q. Would it be an advantage to have a tariff on wax?

Phillips. We probably produce six million pounds of wax annually. Foundation manufacture takes about one-tenth of this. If a tariff were put on wax, it would probably raise our price. Our present method of treating bee diseases is by shaking, and if we could get more per pound for the wax, we could shake our bees profitably, and evade bee diseases. We now lose by shaking.

Saunders. There is probably very little *pure* wax used. Does Dr. Phillips know about purity?

Phillips. The Food and Drug Act of 1906 covers wax used in pharmacy. South American wax has some extra propolis, probably from the stingless bees.

Forty-five per cent. of the honey imported comes from Cuba. Much of this comes from apiaries containing foul brood, and the barrels, when emptied of honey, are often thrown on the dump heap. From

these the disease is often distributed by bees which have been attracted thither. It is well known that large cities often represent the centers of the largest aggregations of these diseases. A high tariff on honey and wax might help then in the two ways to control disease, by encouraging the production of more wax by the "shook method" and by keeping out much diseased honey.

Rea. I am highly pleased with Dr. Phillip's address. Can this be put before the bee-keepers so they will put pressure on their Congressmen?

Klinger. This Association should get busy to keep a tariff on honey and have a tariff placed on wax.

Fox. Returning to the question of foundation, the charge for foundation is seventy cents when extra thin if you buy the wax, but only forty-seven cents when you supply it.

Rea. We have to pay four times as much for foundation as for wax.

Speaker from Maryland. I never destroy my old combs and have never winter-lost a colony since 1873. I get only a half pound of wax per year per colony.

Green. In Bradford county, folks went over from the production of comb to extracted honey. We buy many old colonies where everything is crooked. When we purchase, if a colony is irregular or diseased, we reduce the wax, using principally an extractor of our own construction. We get three pounds or more of wax per colony. The buyers of the slum-gum declare they cannot get enough wax from the slum-gum of this extractor to pay the freight. These colonies are cleaned up and put on the market right every year. By this practice we do away with drone excess.

Speaker from Maryland. Do you break out new comb on account of crooked frames or drone cells?

Green. Not necessarily.

Phillips. I would call your attention to the fact that at least four pounds of wax are contained in ten frames of Langstroth size on an average. We practice shaking our colonies frequently and find that the average colony often produces seventy-five cents worth of wax in two weeks.

Saunders. Dr. Phillips touched a very important subject, that of producing wax. I believe we can afford to turn our backs on old comb to avoid disease. We can find out for ourselves how much honey will be produced. But not so with wax. Are we losing wax by producing honey, or are we losing honey by producing wax?

Klinger. I am anxious about the election, and would recommend that Mr. Saunders write out his questions for later consideration.

It was moved and ordered that the election be held over until the following day.

Klinger. Shall the reports be given promiscuously or only to those whose dues are paid up?

Saunders. I would approve of leaving this matter to the discretion of the Secretary. Some missionary work would be done by those sent out.

The session then adjourned by motion, to meet at 7:15 P. M.

EVENING SESSION.

The evening session convened with President Klinger in the chair. Mr. Rea was at once called upon to deliver his paper entitled

Things for Thought.

By Geo. H. Rea.

Success or failure in bee-keeping, as in other pursuits, depends largely upon the material to be found in "The Man Behind the Hive." One will exploit a certain kind of hive and attribute his success to that particular hive; another has a certain method of manipulating and credits his success to that, while still another lays claim to the best location on earth, and still another has the best bees on earth, etc., etc.

If then so many different men having as many different hives, methods, localities, bees, etc., can succeed, does it not prove the assertion that "Success or failure depends largely on the material to be found in 'The man behind the hive?'"

I firmly believe that we ought to use the kind of hive and practice the methods with which we are most successful no matter what others do, although it positively does not pay us to shut our eyes to the good things that we may learn from others. It is not the purpose of this paper, however, to discuss hives, methods, localities nor bees, but we want briefly to discuss "The Man Behind the Hive," as found on the farm. For the average farmer bee-keeper presents the greatest problem that we as an association have to deal with.

Did you ever notice that mostly the farmers who keep bees are not our most intelligent and up-to-date farmers? and as a matter of course a poor farmer is a slip-shod bee-keeper. Do not misunderstand me now, I do not mean that there are no good farmer bee-keepers, for there are, but such are the exception, at least in western Pennsylvania, and not the rule. I know that most up-to-date bee-keepers are farmers, and perhaps the greater part of those in this convention, the writer included, are proud of the fact that they were raised and live on the farm.

But how about the thousands of farmers who keep a few bees, who belong to no association, take no bee papers, read no text-books, and have no desire to do any of these things or know anything about them?

Let us go to one of these men, as I have done to several this fall to buy bees, and we will probably find that he lacks even the common school education which is so necessary for anyone who even wants to touch upon the problems of bee-keeping, for he may not be able to write his own name.

We will find his bees in box hives, homemade frame hives, with the combs built criss cross, nail kegs, candy buckets, and—well, any old thing will do. Shall we call it an apiary? "Hot bed of disease," would be a better name. His increase this season, has been from 100 per cent. to 300 per cent. and of course he has many weak colonies made by overmuch swarming. The same weak ones to be robbed out in the fall by any one's bees that may happen to be near enough. That means spreading of disease and no end of trouble to the good bee-keeper. The disease problem is not the only problem which he pre-

sents to us for he is also the 10 cent honey man, and we all know, too well, what that means to our markets.

But someone says, that his honey is taken from the brood nest, and is off in color, flavor and in every other way, and so does not compete with a good article. That does not change the fact that it does compete and is the very thing that meets us face to face in all markets. Shall we educate him? If so. How? I give it up.

We may spend a great deal of valuable time and energy in explaining to him, modern hives and appliances, methods, etc., and perhaps he will get a few hives and try them. He may get sections for his honey and a daisy fdn fastener and buy fdin, and then some day when you are so busy that you know not where you are at he will come to make an extended call with tears in his voice and swear words in his heart and tell you that he can't make that "infernal machine" work. Upon inquiry you will find that he has burned his fingers, the fdin has stuck to the fdn fastener or would not fasten in the sections centrally, and other troubles too numerous to mention; more valuable time is spent explaining and he goes away. This dose is repeated until your patience is well nigh exhausted, and finally he produces a fair crop of honey. That is all right so far. But wait. You go to town some day to sell honey and ask Mrs. Jones 20 cents for a nice section of fancy honey, and she will say, "Why I bought all I wanted a few days ago from Mr. Sam Bud for 10 cents."

What! The same fellow that you worked so hard to convert? Yes. What is the matter with Sam Bud now. Well, he tried to sell some honey at 20 cents and some buyer discouraged him in asking so much, and as he was not made of the right kind of material for a good bee-keeper, he gave up in disgust and sold it for what he could get. Next year we find him back in the same old rut, claiming that there is nothing in bee-keeping. And if you do not give him up in disgust it is because you have more Christian grace than the average. The foregoing is not a flimsy flight of fancy, but is the fruit of the writer's actual experience.

Shall we give up then? I say, emphatically, no. Just because the average lot of bees on the average farm is a menace to good bee-keeping is no reason why we should give up. Since we cannot educate let us legislate. I am glad to say that we have now a splendid foul brood law framed, which is, I believe, in the hands of Prof. Surface, and will be presented to our next legislature, and let us see to it that each one writes to his representative requesting him to support our measure. Such a law provides that bee-keepers must be up-to-date or quit.

But it seems to me that we ought to go one step farther and ask for a law to provide for the taxing of bees in our State, having them assessed at so much per colony and milage placed upon them as on live stock.

This, I believe, would go a long way toward getting our foul brood law passed, for it would appeal to our legislators that bee-keeping is bringing some returns for the money expended. In fact the taxes ought to more than pay for the amount of appropriation needed for inspection, etc., in accordance with the foul brood law. Taxation would make bee-keeping more expensive, but in addition to helping the foul brood law, it would give us a legal standing that we do not now have. It would also help the "slip-shod" bee-keeper out of business, not that we want less bee-keepers, but we do want more good ones. Would it not be a desirable thing for this convention to instruct our legislative comity to frame such a law and present it to our next legislature?

Another very serious problem which we have to face at once is the wholesale destruction of our bee pasturage by fire. A conservative estimate shows that there has been no less than 10,000 acres of good pasturage burned within easy reach of our bees at Reynoldsville, and what is true of us is sadly true all over our land. Michigan's great raspberry fields have been destroyed. In some places it is basswood and other timber trees. With us it is brush land consisting of blackberry, raspberry, sumac, prickly ash, huckleberry, etc., all good nectar yielders, in fact our mainstay for white honey is gone for two seasons.

I notice that the papers attribute the origin of most forest fires to careless hunters, but I doubt as to whether the hunters are responsible for one-tenth of these fires. Why did they have, at one time in October, a fire line 15 miles long, employing several hundred men, in one place north of DuBois, along the Pennsylvania R. R. tracks? Because the railroad trains were constantly throwing sparks into the brush and setting out fire. I saw a few weeks ago where a freight train set fire to the brush in six different places in less than 5 miles. Might not something be done to stop railroad trains from throwing sparks? This is only a suggestion, and I will leave it here for discussion.

A short time ago I asked a fire insurance agent if any of the companies which he represented would insure colonies of bees against loss by fire, to which he replied: "Bees are not listed by any company, they might insure them, but if they did the rate would be very high." Why could not this association do its own insuring, and at the same time make the insurance an inducement for new members to gather in? We have about 260 members representing about 5,000 colonies of bees. Suppose we insure these bees for say $3.00 per colony against loss by fire or storm, and tax each member who wanted his bees insured 5 cents for each colony per year. This would bring in the sum of $250.00 per year for insurance fees, provided all insured, which I am safe in saying would be considerable more than would be needed for that purpose. If a surplus of insurance fees gathered it could be turned to some good purpose for the benefit of the Association. This insurance to be extended only to members thus using it as an inducement for the getting of new members. I understand that this method of insuring bees is used in some places in Europe successfully and ought to be successful here as well. The newly organized Rea Bee and Honey Co., of Reynoldsville, will pledge 300 colonies for insurance to start the matter off if you consider it worth trying.

Klinger. Are there any questions on the paper just read?

Saunders. I think Mr. Rea has struck the keynote. That will certainly secure to us an inspector. And it will cut out the sloven bee keepers. I do not approve of taxing to secure data, but I do, to secure protection from disease.

Lutz. Very few persons keep bees in hives into which you can look, in Jefferson county. These old hives are sure to supply disease.

Such a tax on modern hives and double on others would cut out the poor box hive.

Phillips. A tax to provide funds for inspection is not always effectual, as assessors do not know where to find the hives to tax. The one-cent tax in Ohio is absolutely worthless.

Lutz. Why not tax the hive? It is personal property.

Klinger. The chair would now call for a report from the Committee on Legislation.

Surface. On page 53 of our report is a copy of our bill known as House Bill No. 633, Session of 1907. Prof. Klinger and I went before the House Committee on Agriculture. We did not ask for the passage of this bill for the bee-keeper, but for the protection of the honey-producing industry, a branch of agriculture. Mines will cease, other industries will terminate, but agriculture will continue while the world lasts. In England, everybody has honey, has bees, but all are organized and intelligently careful. The government there encourages the industry. We are certainly making rapid progress, and surely will accomplish our end in this next assembly. Four years ago we were not given respectful consideration. Two years ago our reception was courteous, and although the moneys of the State were over-appropriated, they would act on its merits and allow the Governor to make his choice. But it was not heard beyond the Committee on Agriculture.

We must not leave this matter to two or three persons at Harrisburg. Each person must do his or her part, and the more widely distributed over the State the pressure is applied the better. We must prevent the disease, foul brood, from getting into new or clean colonies, rather than to try to cure the trouble. It seems that folks do not care for insurance so much when fire is not in sight as when their houses are on fire. The committee should prepare their part and present recommendations; the work, however, of following up the recommendations is up to the Association.

Motion was offered and sustained to accept the report, and a further motion was made and seconded that the committee be retained for further service. The motions were carried.

Mr. E. R. Root, for whom a place on the program was held, was unable to be present, being obliged to fulfill an appointment with the Columbus Bee-Keepers' Association. In his absence, Dr. E. F. Phillips consented to address the Convention.

Phillips. When Satterthwait asked me if I would talk at York, I offered to talk on any one of three subjects. He asked for two. Now the President asks for the third.

Hawaii is peculiar in that most of the honey produced is from some source other than flowers. Two-thirds of the honey shipped annually from the islands is largely or entirely honey-dew honey. By far the greater part of this comes from the exudations of the sugar-cane leafhopper (Perkinsiella saccraricida Kirk) and possibly some of it from the sugar-cane aphis (Aphis sacchari Zehnt), although while on the islands the author observed none of the latter species. Of course, in a tropical country there are many other insects producing more or less honeydew. The young "plant cane" is most abundantly covered with leafhoppers.

Honeydew from the sugar-cane leafhopper is very dark amber in color and slightly ropy. In flavor it very strongly resembles molasses from the cane juice. Since the color and flavor are so marked, a small amount of this when mixed with the mild, light colored algarroba honey imparts the color and flavor of honeydew to the entire amount. Most honeydew honeys on the mainland and granulate very rapidly, but this type does not granulate at all. Samples several years old are as clear as when first extracted.

The chemical composition of Hawaiian honey dew honey is quite unlike that of floral honey, and this fact has led to the charge of adulteration by buyers on the mainland and in foreign markets. Since nowhere else, as far as the author is aware, is honeydew honey produced in such large quantities, it is not strange that cursory examinations were misleading. The author saw enough while on the islands to convince him that, however unlike floral honey this product may be, it is a natural sweet product collected and stored by the bee and is then extracted and shipped with no additions of other sugars.

When the food and drugs act of 1906 went into effect the Hawaiian Bee-Keepers' Association sent a representative to Washington to find out under what name they could market their crop, since it does not conform to the standard of the Association of Official Agricultural Chemists. They were informed that it could be sold on the mainland market provided it were labeled just what it is. This the Hawaiian bee-keepers have done and it is now sold as "honeydew honey." The bee-keepers of Hawaii fully realize the peculiar honey with which they have to deal and are not attempting to market honeydew honey in competition with floral honey for table use. It goes to the baking trade and for such use is reported to be satisfactory; at any rate, the price received is equal to that received for algarroba honey.

As stated elsewhere, bees prefer floral nectar to honeydew. However, when the supply of floral nectar is not great, the bees work on both, and as a result there are mixtures of the two, stored in the hives varying all the way from the pure honeydew honey to pure floral honey. It is these mixtures that cause the trouble in labeling. One of the requisites of a pure honey as defined by the standards is that it shall be lævorotatory to polarized light; hence, since honeydew honey is dextrorotatory and there are blends made by the bees of this and algarroba honey, it is necessary to have a chemical analysis made to be absolutely certain whether a given quantity of the product of the islands may be sold as honey or as honeydew honey. The various mixtures which occur are well illustrated in Plate I, of Bulletin 110, Bureau of Chemistry. This plate illustrates very well the influence of honeydew on the physical properties of honey. At one end of the series is the pure algarroba, which is represented as granulated, while at the other end is a sample of honeydew honey which is as pure as it is usually found. Between the two in perfect gradation are shown various mixtures just as they came from the hive in various extractings. The chemical analyses of these particular samples, made by Miss Alice R. Thompson, show that the chemical composition varies in exactly the same way. Of these samples, Doctor Browne says:

"From the polarizations and analyses of these samples it will be seen that there is a range in direct polarization from 22.0 to 24.5; in ash, from 0.34 per cent. to 2.04 per cent.; in reducing sugars, from 76.84 per cent. to 59.76 per cent.;; and in organic matter not sugar,

from 1.41 per cent. to 15.88 per cent. In sucrose also there is an irregular increase from 3.58 to 7.2 per cent., this increase becoming more regular as soon as the quantity of honeydew is sufficient to mask the variation in sucrose content of the individual honeys in the series of blends. The granulation of the blends decreases with the increase of honeydew and ceases at about the point of optical inactivity. The latter point, as has been said, is taken by the chemist as the arbitrary dividing line between normal and abnormal honeys, and bee-keepers in the Hawaiian Islands who are troubled with honeydew have in the matter of granulation a rough guide for the classification of their product. If the honey granulates, it may be put in the normal class; if it remains liquid for any length of time, it probably belongs to the class of honeydews. This statement does not apply in general to mainland honeys.

"The dextrorotatory honeydew honeys cannot be regarded as adulterated, in the strictest sense of the word; nevertheless, they are frequently so pronounced by chemists, who, in the general work of routine, are often satisfied with a most superficial examination, and regard dextrorotation or high ash content as certain evidence of adulteration."

There is a test which may be applied with considerable safety. Algarroba honey granulates rapidly and pure honeydew honey does not; it has been found by analysis that mixtures which granulate are as a rule of such a chemical composition that they may be sold as honey. The flavor and color may be characteristic of honeydew honey in spite of the fact that the mixture contains enough floral honey to be sold as such.

The sugar-cane leafhopper was first collected on the islands by Dr. R. C. L. Perkins, now connected with the Hawaiian Sugar Planters' Agricultural Experiment Station, in 1900, and by February or March of 1903 had "appeared generally throughout the cane fields of Hawaii in numbers sufficient to prove a serious check to the growth of the cane." For several years the work of this insect caused a loss of about $3,000,000 annually to the planters, and naturally they were anxious that something be done to stop this heavy loss. By various means the leafhopper has been brought under control until to-day it is not abundant enough to hinder the growth of the plants, "and plantations that were to a certain extent abandoned are again producing heavy crops of sugar."

During the time spent on the islands the author saw no sugar-cane fields that were seemingly injured by the leafhopper, but, on the other hand, there were no cane fields examined that did not contain many leafhoppers. The fact that the leafhopper is not doing damage enough to hinder cane raising does not signify that it has disappeared, nor is there any biologic reason for believing that it will, while cane is grown, unless some entirely new methods of fighting it are found. The fact that 400 tons of honeydew are produced annually from this source in spite of the fact that only a limited amount of the cane area is accessible to bees is a certain indication of the untold millions of these insects which still exist.

The leafhoppers exude a sweet, gummy substance on the leaves of the cane and the honey bees work on this eagerly. However, where bees have access to both honeydew and floral nectar, they prefer the

nectar to a marked degree. When algarroba begins to bloom the honey stored becomes noticeably whiter.

In view of the fact that honeydew honey has the taste and color of common molasses, it has been suggested that probably this product is gathered by the bees from the sugar mills which are so numerous on the islands. The writer visited several such mills located near apiaries on days when bees were actively flying. No bees were to be seen anywhere around the mill. If bees actually did come to the mill after sweeets, they would become a serious nuisance to the workmen. Why they do not is something of a mystery to the writer, but he can vouch for the fact that he saw no mills screened to keep bees out, nor did he see any bees at work in the mill or even on the pile of sweet refuse ("mud cake") outside.

Molasses is used quite extensively for feeding cattle on the islands. It is poured out in troughs or half barrels where the cattle can get easily, and frequently these are located near apiaries. Many of these were examined as the writer went about among the apiaries, and in not a single instance did he ever see a bee at work on the molasses. In some cases these feeding troughs are as near as a quarter of a mile to apiaries. A dairyman near Waimea, Kauai, whose trough is located not a quarter of a mile from a large apiary, informed the writer that he had never seen bees working on the molasses. Obviously, Hawaiian honeydew honey does not come from this source.

Extra-floral plant honeydew.—The situation in Hawaii as regards sources of honey is made still more complicated and interesting by the fact that the hau tree (Paritium tiliaceum has nectaries on its leaves which secrete a honeydew. These are located on the veins of the leaves near the stem and are one, three or five in number. Small drops of honeydew may frequently be seen on these spots. It is interesting to note that these extra-floral nectaries are present on the outside of the calyx of the flowers. There is apparently no true floral nectary.

The hau tree is used quite extensively as a hedge, and grows from 20 to 30 feet high. It is doubtful whether this is the source of any great percentage of the honeydew honey, but the fact that it is present makes it still more difficult to analyze the bee-keeping situation on the islands.

Klinger. What is the earliest status of bees in Hawaii?

Phillips. All modern. The first colony arrived there in 1853 from California.

Klinger. Are the bees mixed races?

Phillips. No, they are essentially all one variety—Italians—and usually of high grade.

Surface. How are the Caucasians, are they worthy of the boom they got?

Phillips. Caucasians are gentler than the Italians, but crossed with some other race, they are usually crosser than the variety with which they are crossed. They propolize badly. Carniolans also propolize entrances to some extent. It is harder to break the spirit of a colony of Caucasians than of other varieties.

Fox. Caucasians sometimes store up all right. They will breed as long as they have one cell of honey, while Italians look for large supplies of honey.

Rea. What are Banats?

Phillips. They are from Hungary, not far from the place of origin of the Carniolans. I know one man who is delighted with an apiary of half-breed Banats. Banats are gentle and do not propolize seriously. That apiary produced a good crop.

Klinger. I will appoint on the Resolution Committee, F. G. Fox, H. A. Surface and Harold Horner, and would recommend that they prepare an expression on tariff on honey and wax, as the Ways and Means Committee of the National Assembly is now in session and will be very sure to cut off the tariff before the end of this month.

On theExhibition Committee I will appoint J. T. Fennell and N. W. Saunders.

Selser. I take this opportunity to invite this Association to meet next year in Philadelphia.

Beard. The Lebanon Bee-Keepers' Association desires this Association to come there—a very favorable honey-producing territory.

Rea. The Association has not met in the western part of the State. There are six members of this Association there, though no association. We need the Association to come there to stir the people to activity and co-operation. Within ten miles of Reynoldsville there is probably a thousand dollars tied up in bees in boxes, nail kegs, etc. We have good railway facilities each way.

Kauffman. The city of Gettysburg extends a cordial invitation to this Association.

Klinger. How shall we vote?

Fennell. Stand.

Klinger. The votes are: Philadelphia, seven; Lebanon, six; Reynoldsville, two; Gettysburg, one.

A resolution presented by Prof. Surface, favoring a vote by ballot was adopted. The vote taken thus was: Philadelphia, eight; Lebanon, nine; Reynoldsville, two; Gettysburg, three. Mr. Rea moved that the Association give a rising vote for Lebanon.

The motion was sustained and the vote was unanimous.

Prof Surface moved that a committee be named to wait upon Sen. McKonkey to express to him personally the sincere appreciation of this Association of his timely and very generous aid in furnishing us with a meeting place in York. The motion was seconded and carried.

The session then adjourned by motion, to meet in the same room on the following day at 9:00 A. M.

The Convention opened with prayer by William A. Selser. In relation to the election of officers, it was moved that nominations be heard from the floor. The motion was sustained. The following officers were elected: President, Prof. H. A. Surface, Harrisburg; First Vice-President, H. K. Beard, R. D. 6, Manheim; Second Vice-President, Harold Hornor, Jenkintown; Third Vice-President, George H. Rea, Reynoldsville; Secretary-Treasurer, Alfred F. Satterthwait, Middletown.

Prof. Klinger, upon retiring from the Presidency, thanked the members for their cordial support during his incumbency of office, and for their acceptance of his declination of the office. He then introduced his successor, who also had been his predecessor, Prof. Surface,

Surface. I thank you for the honor you have conferred upon me and would not feel it possible to accept were it not for the efficient assistance of your Secretary as my assistant in the State office and also in connection with your work. The work of the Association is important, not to make more bee-keepers, but to make better bee-keepers, and to protect the industry. I find it a great gain for my health to put some of my time upon the care of bees, and I have thus purchased more bees just yesterday.

One of the conditions which quickens me to accept your election is that Dr. Phillips will appoint me as a collaborator with him in locating and charting the bee diseases of Pennsylvania. Massachusetts has done this with her two thousand bee-keepers in contrast with our twenty-two thousand.

Our next Legislature may be looked upon as an especial opportunity and occasion. Reports may be provided for in the Agricultural Department's appropriation budget, if you see fit. However, published at our own expense, it gives individual character to our Association, and it is for the Association to decide whether we shall publish or the State shall be asked to publish our proceedings.

I would recommend that the Secretary-Treasurer be authorized to sell at a fixed rate the copies of our annual reports now on hand. I would recommend also that our members mention advertisements in our report, in making inquiries of, or placing orders with, the parties who have placed advertisements in it.

The greatest proposition before the agriculturists of this country is to restore the soil to usefulness. Much land may be bought at less than the cost of the buildings now standing on it. I would refer you to Bulletin —, of the United States Department of Agriculture. Rev. Dietrich's ground was too poor to pay the taxes. He built it up to the greatest nitrogenic richness of any sample examined. This was done by the use of Legumes. Now, I am satisfied that this restoration of fertility is the greatest problem, and conservation of moisture, to hold water from rains, is next.

The leguminous crops give us a line to the prosperity of Pennsylvania. An additional gain from them is the production of honey and wax by the bee. The nitrifying bacteria, assembled in the nodules on the roots of leguminous plants, accumulate nitrogen through the growth of the plant, storing it as available nitrogen in the soil. Thus, through organic growth, the soil is enriched.

No creature originates itself. They grow like their ancestors. Lime is a fundamental element necessary for leguminous plants, which are our chief honey plants. Then it becomes necessary to have lime and bacteria in the soil before the clovers grow. If they are not naturally there, they must be planted. This is called soil inoculation. The method of dissemination is necessary, but impracticable by methods of distribution on cotton. The use of soil that is inoculated is best. A catch of clover or alfalfa will not be accomplished on poor or non-nitrogenous soil at first seeding, nor even at second seeding, but the third seeding is more sure to show good results. Three or four crops (mowings) can certainly be secured almost anywhere in this State from alfalfa, which is a very valuable honey-producing plant.

I would lime the soil, inoculate it, plant, plow down and plant again. Give the bacteria in the soil something to live on. We should

return some of the production of the soil, either plowing down or manuring, even after production is sure. Soil moisture may be locked in the soil by dust mulch, made by cultivation.

If we harvest hay before it is in bloom, or plow down before the blossoms have fairly matured. there is not the same gain or profit in hay crop or in the green manure as there would be later. The saving of the nectar is an additional advantage. At the same time, the plant should not be left unharvested nor the soil unplowed until the seed is hard and the plant stems are hard. The very green plants are not at their best for stock, and when plowed down, sour the soil.

The bees can work on the Mammoth Clover, but not well on the common Red Clover. Crimson Clover, many acres of which I will plant, is also good for bee work. It comes just before the white clover and after fruit bloom.

I wish to state that there are hundreds of barrels of honey wasted annually in our State, not because we have not enough colonies of bees, but because we do not keep the best succession of plants available, and do not thus have the colonies strongest at the right time. The white clover nectar too often comes to the bees as a thanksgiving dinner to the poor waif: a swell affair one day and starvation the rest of the year.

In planting trees along the country roads and drives, the basswood and other nectar-producing plants should make a succession of bloom.

Best farm practice demands the growth of more leguminous crops, not forage and feed as much as for soil renovation and protection as on corn stubble for a winter cover.

Because the stems are eaten there is less loss as hay for stock in alsike than in any other short-tubed clover. I am convinced it would be an advantage for bee-keepers to encourage farmers to plant more clovers. White clover would improve roadsides and simplify bank trimming, and produce honey.

A second crop of clover can be accomplished, to prolong the period of bee feeding, by mowing the first early. One of our bee-keepers gave buckwheat seed to farm neighbors for some seed back, to give bees more nectar at buckwheat-blooming time. Three pounds of alsike clover seed, three pounds of mammoth clover, and one pound of timothy seed per acre makes an ideal hay.

We have in the house one of our most able agriculturists, Mr. Leighty, from whom we would be pleased to hear.

Leighty. It is certainly a great pleasure to speak to you, my neighbors. I want to call Dr. Surface's attention to a mistake—one of his mistakes was to introduce me. I like his address on soil fertility. It is good. We are very wasteful. Twenty-five or thirty years ago, hills were well covered with forests; now, the soil is poorer than two years ago. I used to keep bees for my chief work, but butter got the good price, and now I keep the bees for the pleasure. I keep in touch with a number of good bee-keepers, and appreciate "Gleanings in Bee Culture," which I took from its first.

When I made my first seeding of alsike with red clover, the clover midge destroyed the flower of the red clover, causing it to fail, but the alsike did fine. The cattle eat the stem and all. Alsike should be sown always with red clover. I have used more time than I had in-

tended when I arose, and I had no expectation of being before you. I thank you for the privilege accorded me.

Greene. In getting seed, get absolutely pure seed; it can be bought. The soil must be considered. If soil is moist, be sure to sow alsike, it will grow. It will grow even if too wet for other clovers. A thoroughly prepared seed bed is needed for each seed planted. If the seed bed is thoroughly prepared, the greatest guarantee is secured. Alfalfa has been well started in plots in Bradford County. We who live in cities need successful farming, and have offered seed and bacteria for seeding a thoroughly prepared plot of ground, the ground cultivated until July. Some plots have been maintained for five or six years. The grasshoppers are bad, seeming to be favored by the alfalfa stools. One or more growers have now seeded as high as ten acres. Alsike is good for cattle and sheep and whatever eats hay. If farmers value alsike as a feeding crop, they will purchase it, but must insist that they get pure seed.

Rea. Is alfalfa in Bradford County a nectar producer?

Greene. I cannot answer.

Leity. Bees in York and Adams Counties use alfalfa well, but for hay it can scarcely be left long enough to make nectar.

Why does alfalfa not do well, but turn yellow and die out?

Surface. Probably there is need for sub-soil plowing. Alfalfa about Harrisburg produces seed, hence it certainly is cross-fertilized. Honey bees and other insects visit it. If we would use our own seed. it would probably do better than imported seed. Alfalfa is certainly a reliable and useful pasture plant.

Inquirer. I have cow-horn turnips in a field now. I did not get them turned down. When should I lime the soil?

Surface. What would you say, Mr. Leighty?

Leighty. I believe it would be advisable to sacrifice an early crop and plant alfalfa later. If alfalfa is not good, put on a half ton of lime to the acre and disc. The results will be most excellent after two years.

Fennell. Read the Ohio Agicultural Experiment Station Bulletin.

Lutz. Ground limestone. not burnt, is all right.

Surface. While this is drifting to agriculture rather than to apiculture, I consider it of fundamental importance. Wild plants and forests are being reduced. We must produce a succession of cultivated plants if we want honey.

What is the pleasure of the Association about charging something for copies that go outside of our membership?

Klinger. When corresponding about this issue of the convention. I presented to the Secretary my plan of publishing the Juniata Schools' Institute program.

Greene. These are an asset of ours. What shall we do with them? We should use them to advance our work. If we can get members by sending these out judiciously, free. it would be well to leave the matter at the discretion of the Secretary.

Lutz. Send a post card to members whose dues are in arrears telling them we will send them a copy upon receipt of dues.

Greene. All past members have contributed to our treasury at some time, and should have a copy.

Selser. I move you that the Secretary be authorized to sell copies

at twenty-five cents a copy, and notify by postal card members whose dues are in arrears that upon receipt of dues a copy of the report will be mailed.

The motion was supported and carried.

Rea. Action should be taken on the question raised by the Secretary concerning the termination of dues.

Fox. I move you, Mr. President, that membership shall expire upon the termination of dues.

Greene. I had not experienced this difficulty, but will second the motion.

Surface. Is the Resolution Committee ready to report?

Fox. The committee is obliged to defer the report, as the President is on the committee.

Surface. Is the Exhibition Committee ready to report?

Fennell. The committee will report after dinner.

Surface. The date of our next convention should be discussed. There are advantages in having our State Association meet in the summer, or, at latest, before the date of the meeting of our National Association.

Selser. I move you, Mr. President, that the time of our meeting be arranged in September, the days to be fixed by the Executive Committee.

The motion was seconded and opened to discussion.

Rea. We should confer with the Lebanon County folks. When the bees are cross, it is not pleasant to work among them.

Fennell. A crowd demoralizes the bees and they are consequently good natured.

Hahman. The work trouble is more imaginary than real.

Rea. I agree with the remarks of Mr. Hahman.

Beard. There is not a good Lebanon County nectar flowing in September.

Greene. September is a very busy time, farming and attending agricultural fairs.

Beard. The convention should be in October or November.

Surface. We shall now adjourn until 1:30 P. M. Be prompt.

The afternoon session was called to order by the First Vice-President.

Selser. A number of our members consider it wise to try September for our meeting next year, and if it is desired so, other conventions may be held in some other month. I therefore call for a vote on the question under discussion.

The motion was carried.

Beard. The report of the Resolutions Committee is now in order.

Fox. The Resolutions Committee respectfully submits the following resolutions:

The Pennsylvania State Bee-Keepers' Association, in convention assembled, wish to submit the following as an expression of their appreciation of the services of the officers and assistants of those who have labored so untiringly in behalf of the welfare of this Association:

Resolved, That we express our appreciation of the untiring efforts of the officers, retired and continued.

Resolved, That we extend our thanks to Senator McKonkey, through whose efforts we have been enabled to meet in the spacious and beautiful halls of the court house.

Resolved, That we extend to Dr. L. O. Howard, Entomologist of the Department of Agriculture, our thanks and appreciation in allowing Dr. E. F. Phillips to attend our meetings.

Resolved, That we extend to the United States Department of Agriculture our thanks for their assistance, through Dr. E. F. Phillips, during the past year.

Resolved, That we thank Dr. E. F. Phillips for his able and instructive addresses and services rendered.

Resolved, That we thank those who have made the splendid exhibits of bee-hives and appliances and honey.

Resolved, That it is the sense of the Pennsylvania State Bee-Keepers' Association that it is imperative for the continuance and furtherance of the bee-keeping industry that a duty equal to, or greater than, the present schedule of twenty cents per gallon (on honey) be included in the forthcoming tariff law to be framed in the extra session of Congress, after March 4th, 1909.

Resolved, That as a means of combatting bee disease, it is desirable that a duty of at least ten cents per pound be placed on bees-wax.

Resolved, That a copy of these resolutions be sent to each of the parties herein named. That a copy be sent to the York daily papers for publication, and a copy be spread on the minutes to be incorporated in our next annual report.

Respectfully submitted,

(Signed)

F. G. Fox,
H. A. Surface,
H. Hornor,
Committee.

The report was adopted as read.

Surface. The report of the Exhibition Committee is now in order.

Fennell. The Committee on Exhibits recommends that the Association extend a vote of thanks to Mr. D. C. Kauffman for his exhibit of bee-hives, supplies and bee literature; to Cleaver and Greene for their exhibit of bees-wax and the Hersher wax press; and to Mr. E. H. Miller, to Prof. F. G. Fox and to the Rea Bee and Honey Company, for several samples of the different varieties of extracted and comb honey.

Respectfully submitted,

(Signed)

J. T. Fennell,
N. W. Saunders,
Committee.

The report, amended as above, was adopted.

Klinger. As suggested in the Secretary's report, what should be done about printing copies of the House Bill 633, Session of 1907, while the present type is set up?

Surface. Copies can be gotten from the State supply, after the bill is presented and in time for results.

Dr. Phillips then delivered an address.

The Practical Treatment of American and European Foul Brood.

E. F. Phillips.

The subject which has been assigned to me at this time is one of the most important now before American bee-keepers and, unfortunately, is not very well understood by anyone. Toward the end of devising proper treatment all investigations of the cause and characteristics of bee diseases must bend, if they are to be of any value to the practical bee-keeper. However much the bee-keeper may be interested in the bacteriological findings in a bee disease, these things are of less importance in his practical work but he wants and needs careful, reliable work on treatment.

The bacteriological investigations are very important but I shall not dwell on this point. It is perhaps enough to say that, until we know the cause of a disease and can make a detailed study of that cause, we cannot know just what we are fighting.

In finding methods of treatment, there are two possible ways to proceed. By repeated trials of various manipulations the practical bee-keeper may by chance hit on something which enables him to save his property from destruction; he may make such a lucky find without any knowledge as to what has caused the disease. It was in this way that Schirach, in the eighteenth century, found the shaking treatment for foul brood and since then this same treatment has been used extensively. The Schirach treatment, or, as we now call it, the shaking treatment, enables us to prevent the brood diseases from destroying our bees and it certainly is satisfactory in the majority of cases.

The other way of investigating treatments is to find the cause of the disorder, study its characteristics and plan manipulation in the light of knowledge gained in that way. This method of procedure, while probably the more logical way, is open to the minority, but all can take the results obtained and utilize them without any great knowledge of bacteriological technique. But such work is slow. I fear that many bee-keepers wonder why the Bureau of Entomology is not able in a short time to make positive statements concerning the causes of disease, particularly European foul brood. To tell why would be a somewhat lengthy task; but let me simply point out that, in all diseases of animals so far studied, accurate results have been obtained only by years of work and no problem in bacteriology is an easy one. It took years to establish the cause of American foul brood and there is still much to learn. The bee-keeping public has been victimized by too many hasty workers who jump at results on insufficient data and we do not care to be in that class.

To illustrate the great desirability of first getting the cause, let me cite some recommended manipulations. Because carbolic acid is used quite generally as a disinfectant it has been repeatedly recommended that a 2 per cent. to 5 per cent. carbolic acid solution be used to disinfect hives in which infected colonies had lived. This was done without a knowledge of the cause of either disease and in the case of American foul brood of which we now know the cause it is certain that a 5 per cent. carbolic acid solution will not destroy the spores of

Bacillus larvae in the short time taken to wash out a hive. In the case of European foul brood, of which we do not yet know the cause, we are unable to say whether the carbolic acid acts as a disinfectant or not.

In a similar manner without knowing the cause of either disease, various authors have recommended the feeding of carbolic acid, napthole beta, salicylic acid and similar drugs in sugar syrup to diseased colonies. While, as suggested previously, it is possible to stumble on a method of treatment by promiscuous experimentation, we should not take these recommendations too seriously until more is known about the disease. Such recommendations are largely confined to European authors for American bee-keepers, from sad experience, have learned to put little faith in these treatments.

It has also been recommended that various antiseptics be placed in the hive to ward off disease. One European writer, posing as the omniscient guide of the bee-keeping world, writes in a recent edition of one of his books as follows:

> "There are certain antiseptics such as carbolic acid, phenyle or creolin, izal, eucalyptus camphor, naphthaline, etc., which evaporate at the ordinary temperature of the hive, and whose vapors, while not actually killing the bacilli, arrest their increase or growth."

When it is remembered that this is apparently recommended without any knowledge as to the cause of any brood disease, it will not be taken seriously. Surely no American bee-keeper would entertain any hope from such a treatment.

It is wise at times to cast up accounts to see where we stand. Let us look over the field of bee disease treatment to see what we know and do not know.

We know from the experience of hundreds of bee-keepers for years past, that the shaking treatment will enable the bee-keeper to keep either disease under control so that he can remain in the business and make money out of it, if the seasons permit. This treatment consists of removing all combs, honey, pollen and brood from the colony and putting the bees on foundation, compelling them to replace their comb, rear new brood and gather new stores. By this means the diseased material is removed and the contaminated honey and pollen which we consider as the carrying agents are no longer available to feed to the brood. We do not know what becomes of bacteria which may be carried over in the honey in their honey stomachs or possibly even on the outside of their bodies. We do not know when it is safe to use full sheets of foundation and when we should use only starters. There are many other points variously surmised which are not yet settled and we must content ourselves with the fact that if a diseased colony is shaken from its combs to a clean hive on starters of foundation, the disease rarely reappears. Starters of foundation are here specified largely because reports would indicate a larger percentage of successes when they are used. If all worker comb is desired the bees may be given full sheets of foundation later.

We do not yet know just when or how it is best to shake in order to meet with the least financial loss and this is one point which must be thoroughly investigated. Ten frames of Langstroth size will probably contain, on an average, four pounds of wax and to shake the bees so that they will secrete this wax with the least consumption of time

and stores is a problem of great importance. Probably a more important point is to devise a way by which the bee-keeper can get out of the combs all the wax in them. Our present methods of wax extraction are exceedingly crude and we are annually losing a great deal of wax by the use of the wax presses now commonly employed.

We do not know whether it is always necessary to disinfect the hive or not but to be on the safe side we should continue to do it until we know that it is not necessary. Since chemical disinfectants do not promise any results for American foul brood and since we do not know the cause of European foul brood, we can be sure of complete disinfection by burning out the hives. If this is done carefully, it does not injure the hive. In the field work of the Bureau of Entomology a blue flame torch such as is used in removing paints has been found very satisfactory.

We do not know of any antiseptic which can be fed in syrup or given in any other manner which will cure the disease. Neither do we know of any method by which combs can be disinfected by fumigation or otherwise to insure success. Until careful bacteriological work has demonstrated the value of any such method it would be folly to put any reliance in it. Furthermore the experience of most American bee-keepers up to the present has shown that antiseptic feedings and fumigations which have been tried are not of the value attributed to them. It would therefore be unwise to recommend them.

The logical practical treatment for both of the diseases under discussion would, therefore, appear to be the shaking method. Until something better is devised, this is the only treatment which we can recommend. When our knowledge of the causes of the two diseases is more complete, it is to be hoped that we can find something better. It is also to be hoped that the present weak points in the shaking treatment may be strengthened by work which will give us information whereby we can decrease the expense of shaking. The main conclusion which we can draw from a study of treatment is that there is still much to learn.

So far I have discussed the subject of control from the standpoint of the individual bee-keeper. We have learned, however, that individual action is not enough and that co-operation and outside aid are essential points in a rational control of foul brood. Although this portion of the subject of disease work is not specifically assigned to me, I shall ask your indulgence for a few moments longer on some phases of this problem which occur to me as a result of some recent experiments of the Bureau of Entomology.

The work of the various states in providing inspection of apiaries is of great value to the bee-keeping industry and an earnest effort should be made to have proper laws passed where they are needed. In several states such movements are now on foot. When such laws are passed, however, we cannot afford to believe that the problem is settled. It has only begun and the state inspector cannot be expected to do all that remains to be done.

The element of the work in controlling disease which will require the most labor is the educational feature. It is really remarkable after all that has been written how many bee-keepers do not know that there are any diseases of the bee.

The first step in this work is to learn just where the diseases exist.

This phase of disease work has been neglected in this country and no concentrated effort has been made to establish the necessary facts. During the summer just closing the Bureau of Entomology made a greater effort to locate diseases and in all we have examined nearly a thousand samples to get the data desired. We are not yet prepared to give our results. In doing this work we are compelled to make it a rule never to be sure whether diseases exists in a given locality until a sample of diseased brood has been obtained. Furthermore all samples were examined bacteriologically to be sure of no error in diagnosis. In the case of European foul brood this is particularly necessary for the symptoms are not constant enough to be sure of a sample after it has been away from the hive for a time. Many reports of disease turn out to be unreliable and this matter is too important for any suspicions to be accepted as facts. While the sending in of these samples by various persons interested is much appreciated, it has seemed rather strange that some men who were in a position to help us materially with this enormous task have not responded as we might have wished. There may be some bee-keepers who do not want it known that they have disease in their apiaries, and, therefore, are opposed to work on distribution. It is no disgrace to have disease break out in an apiary; the only condition under which a bee-keeper may be considered remiss is when he does not treat his diseased colonies. Any man who hides disease and tries to give the impression that his bees are healthy when they are not is, to say the least, no friend to other bee-keepers. In some states he is legally worse than that.

After the distribution is learned the next step is to get in touch with every bee-keeper in the territory where diseases exist. This is not easy. During the past summer the Bureau of Entomology has sent out something over 10,000 circulars to postmasters, asking each one to give the names of bee-keepers in his vicinity. All of the returns have not yet been received but each report will probably average five names. The same plan could be used for a request from a government department for all the post offices in the United States (over 60,000 in number), if necessary, but our very limited office force will not permit it. In some parts of the country we have been able to get extensive lists of bee-keepers from other sources.

After the names of bee-keepers are received, the next step should be to send out a notice to each one living in a county where either disease exists, advising him of that fact and sending a circular on the subject so that he can become familiar with the symptons and treatment of the disease. We have not been able as yet to do this in many cases but hope to continue the work in the future.

I have briefly outlined this scheme, not to advertise what the Bureau of Entomology aims to do nor to make elaborate promises but merely to indicate the fact that, if diseases are to be controlled, it will take work to bring it about. To sit by and expect an inspection law to wipe out disease is not the part of wisdom. It has never done so yet.

Nor have I indicated all that must be done. I should be very much pleased, however, if by this outline I could induce each person interested to do his share for the furtherance of the industry. The Bureau of Entomology will continue to do what it can with the present limited

funds, but it will be just as unwise to leave too much to us as it is to expect too much of an inspector.

Bureau of Entomology,
Washington, D. C.

Rea. I have been cleaning up colonies for ten or twelve years, practicing shook swarming. I now shake a colony in a hive body and put a hive body just above. Thus I avoid letting the bees crawl into another colony. I would like to know how queens carry disease.

Phillips. Cheshire stated that he found foul brood in the ovaries of a queen, but this statement is usually discredited.

Selser. I am glad to hear Dr. Phillips, and like to note his superior knowledge in the statement that he does not know. That is a mark of superior knowledge.

We isolated some twelve colonies some three or four miles from our nearest apiary, and watched developments until the following spring. These isolated colonies constituted our hospital apiary. A neighbor captured a swarm and we, presuming it might have been from our hospital apiary, had him mark the new swarm, and allow us to put his colonies into modern hives. We arranged a caldron and put all goods into the caldron of boiling water. In his two old boxes, all were healthy. The one from our "hospital" was badly diseased. The question arose, why the healthy bees did not rob from the hospital apiary.

Phillips. The new colony may have been clean when hived, and acquired the disease by itself robbing from the hospital.

Lutz. Do the bees carry diseased material when shook?

Phillips. Probably, but usually it is consumed before there is any chance of the cause of the disease reaching larvae. The disease transmitted to larvae normally through the stomach of the worker, and the damage is to the larvae only.

Hahman. Disease is very prevalent about Philadelphia. The Association there will have an inspector of their own this winter.

Phillips. To learn the distribution of the diseases is very important. The Legislators will ask first thing what the distribution of the disease is. Where found once in a county, it will usually continue. The Bureau of Entomology is now marking maps where disease is found only after a bacteriological determination. We do not know the cause of European foul brood, but we know how to diagnose the disease.

Greene. When may samples of disease be sent in?

Phillips. American foul brood may be sent in any time that there are disease scales in the cells. It is more difficult to find European foul brood in late summer. If any one wishes to send a sample to Washington, drop me a card and I will send a tin box and a frank.

Rea. European foul brood apparently is dormant from late summer until spring.

Selser. Isn't it dangerous to do shook swarming where honey falls out on the ground?

Phillips. If the honey is so thin as that, other bees will usually not bother it.

Selser. Is there any record where the disease has been kept out for five years?

Klinger. What is done with the honey and wax?

Phillips. The honey is all right for people to eat, but it should not be marketed. It is ordinarily safe to dispose of the wax as usual. Mr. France found a honey jar thrown away, being visited by bees, within a quarter of a mile of his own apiary. The apiary from which that jar came had been found to be badly diseased just before.

Surface. Why do you advise shaking but once?

Phillips. Because there is a stimulus from the first shake not found in the second and usually there is no re-infection.

Fox. I shake on burlap in the evening, when no robbing takes place. Then, if there was any bungling, I burn the burlap.

Rea. Some will think, after they shake next summer, that they have lost the flow.

Phillips. If you shake in front of a new hive, shake the first frame toward the entrance of the hive. Those which light at the entrance put their bodies up and fan. Those a little distance away do the same thing. The odor produced seems to call them all in.

Fox. We want our director to the National Association. Let us select a nominee.

Klinger. One bee journal patronizes three men, not including Prof. Surface.

Fox. Each member of ours should vote for one director only, and that one, Prof. Surface.

Surface. What is the cause of bald brood?

Phillips. Sometimes it is caused by the lesser wax moth eating the cappings.

Surface. I have observed the larger bee moth cutting off caps. Is it known that there is any other cause?

Phillips. No.

Greene. Knowing the interest which Hon. E. K. McKonkey has in keeping bees, I move you that he be accorded honorary membership in this Association.

The motion was seconded and carried.

Surface. What data would the Association consider practicable to collect?

Phillips. I have arranged with the Secretary to send to each member the bulletins now available for free distribution, with a list of bulletins available at a nominal price, bearing on bees and published by the Department of Agriculture.

Klinger. I move that the Secretary-Treasurer be authorized to pay the janitor's fee at this place.

It was so ordered.

Selser. I move that the President be authorized to write up a brief report of this convention and send to the bee journals. The motion was seconded and carried.

Surface. It would be an advantage to have a local committee near Lebanon to perfect the arrangements for a hall for our next convention.

Greene. I move you, Mr. President, that we do now adjourn.

The convention was thereupon adjourned.

ALFRED F. SATTERTHWAIT,
Secretary-Treasurer.

Report of the

Sixth Annual Convention,

PENNSYLVANIA STATE BEE-KEEPERS' ASSOCIATION.

The sixth annual convention of the Pennsylvania State Bee-Keepers' Association was called to order about 2.00 P. M., September eighth, 1909, by the President, in the spacious P. O. S. of A. hall, Lebanon, Pa. The opening prayer was offered by Wm. A. Selser.

The following members responded to the roll call at the opening of the convention: Mrs. C. L. Beard, Messrs. H. K. Beard, A. H. Cassel, E. S. Hacker, F. Hahman, H. Hornor, C. F. Klees, H. C. Klinger, Mrs. M. L. Laudermilch, Messrs. J. H. Miller, J. R. Rambo, A. F. Satterthwait, W. A. Selser, W. Shilling, G. H. Shirk, M. F. Smith, C. B. Snyder, P. G. Snyder, H. A. Surface, W. Watson, and I. B. Wenger. A number of visitors were present.

The minutes of our last meeting were read and approved, after which the Secretary's report was also read and approved, as follows:

The Secretary begs to submit the following report: Since the York convention, there has been enrolled thirty-one new members, approximately the same number as were secured during the year ending Nov. 11th, 1909. Some members whose duties had lapsed have welcomed the change in payment of dues from a continuous membership to that of membership terminating with the expiration of dues. The price fixed on the report may also in part have accomplished this renewed interest. The number of reports sold is only six. There remain on hand approximately three hundred. Our enrollment yesterday was one hundred and forty-six, which is perhaps twenty more than were paid up on Nov. 11th, 1908.

During the session of the Legislature of the current year some additional service was rendered the Association, Dr. E. F. Phillips, of Washington, D. C., and Wm. A. Selser, of Philadelphia, representing the Philadelphia Bee-Keepers' Association, joined with your president in a conference with the Agricultural Committee of the House of Representatives concerning the passage of the bill approved by the Executive Committee. The Bee-Keepers' Association of Jefferson, Clarion and Armstrong counties sent resolutions to their legislators, urging their support.

The Lebanon County Association contributed to the support of the Association in general by recording several new members and keeping their earlier members enrolled.

The matter of publishing a report of the York convention was carefully considered, but by reason of a divided expression being given by the Executive Committee on two different occasions, it seemed expedient to lay the matter before this body. The lowest bid secured for printing five hundred copies, same style as last year, was $30.00. The next bid was $40.00.

The Secretary has secured prices on printing 50,000 copies of a statement concerning the purpose of this Association, to be circulated among the bee-keepers of our State without other cost to the Asso-

ciation than supplying the circulars. Prof. Surface states that he is about to send out circulars to addresses now in his possession, aggregating approximately 50,000. The price for a good grade of paper, 8½ by 11 inches in size, is $65.00; for book paper, same size of sheet, $43.00; for book paper, one-half this size, $34.00. As the time was so short before this meeting, it became impossible to secure concerted action. Further action, then, might be expediously secured at this convention.

Respectfully submitted,

(Signed) ALFRED F. SATTERTHWAIT,
Secretary-Treasurer.

Prof. Surface addressed the Association concerning his purpose to send from his office, in connection with his co-operative work with Dr. E. F. Phillips, circulars concerning the Pennsylvania State Bee-Keepers' Association, but Dr. Phillips declared that to enclose such circulars would be illegal, hence forbidden.

The Treasurer's report was then read and accepted, as follows:

Cash on hand Nov. 12, 1908	$117 64	
Receipts from assets	28 00	
Receipts from dues	111 75	
Receipts from reports	1 50	
Interest from deposits	55	
Total receipts		$259 44

Expenditures.

Nov. 13, 1908, Janitor's Fee, York, Pa.	$3 00	
Nov. 16, 1908, Evangelical Publishing Co.	105 00	
Feb. 8, 1909, Printing 1,000 letter heads	2 75	
Feb. 23, 1909, Expressage on letter heads	65	
Stamped envelopes, postals and stamps	15 35	
Dues to National Association	58 63	
Salary to Secretary-Treasurer	20 00	
Total expenditures		$205 38
Balance on hand		$54 06

Respectfully submitted,

(Signed) A. F. SATTERTHWAIT,
Secretary-Treasurer.

The President stated that, as it would not be allowable to send out the circulars suggested in the Secretary's report in the manner contemplated, it would be impossible for the Association to pay for postage on so many, so suggested sending out circulars to 5,000 and extend the work if it paid. Penn G. Snyder accordingly framed a motion authorizing the Secretary to have printed and sent out 5,000 copies of the proposed circular. The motion was seconded and carried.

Reports of standing committees being called for, H. A. Surface reported that, after receiving aid from Dr. Phillips, Mr. Selser and others, he was able to present a bill which, had it been enacted, would have been the best law on the subject in the United States. But, after having been heard by the House Agricultural Committee, E. E. Pressler went before the Committee when no other bee interests were represented. He made a number of contrary statements which

confused the members of the Agricultural Committee and they held up the matter until too late for the bill to be enacted. Thus, the bill was lost and disease is allowed to run on.

P. G. Snyder. Why was all this?

Surface. I consider Pressler was antagonistic and ignorant of what he was doing.

Selser. It would be wise to begin early and inform the legislators of the actual situation regarding Pressler.

Phillips. It is up to the Pennsylvania State Bee-Keepers' Association to begin now, gathering statistics and making preparations to show the situation so that the legislators will understand the importance and need for a bee law and a bee inspector.

Klinger. Pressler stated two or three years ago he would spend a thousand dollars to prevent the enactment of a law which would make it compulsory to boil candy for queen shipments.

President. Mr. Beard, will you kindly occupy the chair?

Beard. We will now have the honor of hearing the President's Address, Prof. Surface:

President's Address.

H. A. Surface.

If I had had time to prepare a careful address, I would choose as subject: "Knowledge and Practices." One man may make money on a farm, another lose. The difference is in methods. One should be slow to accept the new, yet not too slow to relinquish the old. We see both extremes throughout the State. In saving a tree, the man behind the spray pump is the winner. So the man behind the hive is the consideration. The men accepting improvements in apiculture in this State are few and very seriously in the minority. The Philadelphia vicinity is an exception. I do not wish to increase the number of bee-keepers but I do wish to promote the standards of those now keeping bees.

Among the bee-keepers' necessities are bees, movable-frame hives, smoker, interest, and determination to learn and to practice what he has learned. A first question is, where to keep the bees. They may be kept anywhere. I kept some in the second story of a barn, boring holes in the weather-boarding for the bees to come and go. One may keep bees in a small yard, even if he does not own the property. A Pennsylvania fruit grower said to a neighbor: "I will let you keep bees in my orchard, without cost, if you will keep at least ten hives continuously."

Hives.—To know what has been done and then not use your opportunity to do is stagnation. We are showing some progress and exploding some theories. After having the bees and getting the smoker, the bee-keeper will gather in his necessary accessories. Then he will think of protection, legally, from disaster, and from disease. How many bee-keepers have tried to improve the tariffs?

What is fundamental? Motto: Keep your colonies strong. If you remember nothing else I have said, remember this. It is the bee-keeper's golden rule. Here are his ten commandments:

1st. Hold your nerve and never box the bees. Let them learn you are not afraid, and you will be master of the situation. Do not box them, catch the individual that lights to sting and kill it quickly. Then smoke your fingers so the odor will not be perceptible to the other bees.

2nd. Keep your smoker lighted, wear a vail and be prepared for the worst. The whole humor of a colony may be changed from happy to wicked in a few minutes. Even a thunder storm may cause the change, or mishandling may do it.

3rd. Keep individual colony records. There is as much individuality between one and another hive as between one and another horse, cow or person.

4th. Sort out or re-queen the deficient colonies. Note whether the colony has watery or good honey, whether they propolize or not, or build crooked comb, or have other faults, crossness, and the trait or ability to protect themselves against worms.

5th. Clip the queen's wings, not exactly to prevent swarming but to prevent their escape in the event of swarming.

6th. Keep no queen longer than two years, on business principles. I would never recommend keeping a queen longer than two years. Usually one year is long enough. It is best to re-queen each year.

7th. Give the bees plenty of room, ventilation and plenty of shade. I want bees to have shade when they need it, from 10 A. M. to 3 P. M. Bees form habits. They get idle and "hang out" habitually when ventilation is insufficient.

8th. Practice what you learn and learn more by practice.

9th. Ripen your honey. Do not take off honey until it is ripe. The trade calls for white honey and that is secured by early removal from the hive. Do not consider me a fool! I left my honey in the hives until the holidays and received the highest price for that which was best ripened. Turn out a gilt-edge product, charge all you can get, and you will be respected for it.

10th. Select a good strain. Italians still seem to me best. I prefer a staple-frame hive, and a double-walled hive, if wintering out. The size depends upon whether running for comb or extracted honey, the eight-or ten-frame hive for comb honey and the ten-or twelve-frame hive for extracted honey. The ten-frame hive is useful either way. A sudden flow of nectar should go to the supers, hence the eight-framed hive is the best, with a regular or long flow the larger is better.

Bee pasturage. Some one said to sow buckwheat in the corn field just before the last cultivating of the corn. The plant will enrich the soil and provide nectar for the bees. It also makes good swine pasturage after harvesting the corn. It will pay three-fold. To plant for bee pasturage exclusively would not pay, but when the plants improve the soil or cover the ground over winter, it does pay. Crimson clover should be mowed just after the best of the nectar flow, then another crop will grow.

Apple, crimson clover, alsike, white clover, sweet yellow clover, then the second crop of crimson clover and the sweet white clover make a useful succession. Alsike and common red clover do well together, the bees working on the alsike. The nectar in mammoth red clover is accessible to the honey bee.

Pointers. How to prevent propolizing.—Select strains that do not propolize. Destroy the propolis, at least do not leave it where the

bees can get at it. Bridge the gaps in the nectar flows. Feed stimulatively from now on (i. e., after the summer flow) for six weeks, to encourage increase of brood. Prevent swarming. Let them feel that they have not much store so that they will work harder.

Beard. Next on the program is the election of officers. But, perhaps there are question on the President's address. The address is open for discussion.

Hahman. Prof. Surface touched on superseding of queens. Queens that are unfavorable, he says, should be weeded out. I would ask that we make sure of the qualities of the queen before removing or destroying her. I consider that drones have more influence in the disposition of the workers than the queens. So, I observed the workers of a good queen I watched, she had wicked workers, but the next generation was like the grandmother. If we eliminate queens, do we know we will be better off?

P. G. Snyder. The males take after the mother, the workers and daughters after the father. The first generation from a cross of a gentle queen is, may be, wicked, but the next generation would revert to the gentle queen and be gentle.

Phillips. Bee-breeding is not very thoroughly understood. We know something at the present time but we will have to choose from select stock and study as we go.

Surface. The undesirable drones can be killed to control the mating of queens by the use of an Alley drone-trap. Put it in front of the hives which have drones to be killed.

Klinger. The full sheets of foundation prevent the colony from producing drones except around the edges.

P. G. Snyder. I get small drones from worker-cell foundation.

Klinger. If you want the old comb, you can cut out drone cells.

P. G. Snyder. I believe the selection of the drone is more to be watched than that of the queen. Careful drone selection, I think, is the more necessary.

Hahman. I do not think we can lay much stress on the grandmother. What I wish to bring out is that we need to know more about the qualities of the drones.

P. G. Snyder. The drone is not brother to the worker.

Surface. What is Mr. Hornor's view as to how often to requeen?

Hornor. Every year. I want to know more about the drones. Will we not remedy the drone question by careful selecting of the stock apart from the direct selection of the drone?

Surface. I believe Mr. Hornor wants to select along the line I have suggested in my address for productiveness. I confess we are in that measure breaking away from the old idea of pedigree strains. If I develop my queens and drones from only productive hives, I am safe.

Klinger. A straight strain will not always continue straight through years. One colony which did not supersede the queen has been propolizing dreadfully, but they were my best working colony this year.

Klees. Professor Surface was talking about taking queens from the best colonies. Would not that result in decrease by in-breeding?

Surface. I think the reverse would be true. Really we do not know much about the disadvantage of in-breeding.

Selser. The queen is the combination of the male and the female. The honey producer must depend upon the queen-breeder. I find the selection of queens from good strong colonies is all I need think about.

Phillips. Does Selser think we should get all queens from queen breeders?

Selser. Yes, theoretically. I keep a strain apart for my queens and apart from that I do not produce queens.

Selser. I sold eleven hundred and twenty queens one year. I figured out the cost. I had to break up a number of colonies. I used a three-frame Hoffman nuclei. I placed a value on the discarded swarms, on my time and on the barrels of sugar used. The cost averaged me seventy-two cents per queen.

Phillips. We cannot expect a queen breeder to tell us just what it costs to rear good queens. In our apiary we got fifteen or twenty queens in a swarm box and put them in a super with a queen excluder. The cost of getting queen cells is very small, about seventy-one cents less than seventy-two cents. The mating of these queens in nuclei is quite expensive, however.

Selser. I used the Doolittle system successfully and exclusively.

Phillips. Several times in the season you can produce queens at ten cents apiece. The honey producer will not lose much and the cost is small.

P. G. Snyder. If a colony is queenless for twenty days, it is disastrous.

Phillips. At the latitude of Washington, queenless for twenty days and even more is not disastrous during the latter part of June and the first of July.

P. G. Snyder. (About cost of production of queens.)

Hornor. Forming nuclei, we take a frame of brood out of a full colony and they never miss it. We often gather additional honey from this manipulation of nuclei. We put queens in with nuclei as soon as they are made up. Thus, we place the cost of queens at fifty cents.

Klees. Does it hurt the queen to be sent through the mail?

Phillips. Untested queens cannot be sent nearly so safely as a virgin queen.

P. G. Snyder. Why?

Phillips. I can give you only my theory. Tested queens are probably injured because they are sensitive to jars when the ovaries are distended. The offspring are all right for breeding purposes, however.

P. G. Snyder. It is not fair for the queen purchaser to expect the queen breeder to ship a queen that will do as well as the breeder's best yard-queen. We send queens to produce productive stock.

Surface. Now, that comes back to my hypothesis. Each bee-keeper should select his own stock as he goes. What is the method of requeening best fitted for the bee-keeper of, say, about fifteen colonies? I believe his best plan is to cage the old queen during the height of the white-clover honey flow. This is a time the honey should go up stairs instead of brood. Save the coming queen cells in cell protectors with queen-excluders.

Phillips. Mr. N. E. France's father, E. France, was enthusiastic concerning this method of controling swarming, but in a large per-

centage of cases it is a failure. Theoretically it is good, practically it is a failure. The shaking or artificial swarming takes all brood from the colony and is much more practical.

Selser. In regard to cost: The first thought of a bee-keeper is to raise queens. It sounds profitable but Mr. S. K. Snyder, resident and present here, can certify it is disastrous.

P. G. Snyder. Prof. Surface says you save by caging the queen. But do you save anything in the workers?

Hornor. We shake the bees when they are not inclined to work, making sure to break up the brood.

Selser. I want to hear from Mr. S. K. Snyder, who knows a lot from experience. He has gone into it in good faith and has had reverses.

S. K. Snyder. I can see no cheaper way than with a two-or three-nuclei system to produce queens. Queen rearing is all right if you have plenty of money back of you and enjoy queen rearing as a pastime.

Surface. For the man with ten or twenty colonies, I am sure the best way is to adopt the plan I have recommended.

P. G. Snyder. That is only all right for a very few queens.

S. P. Heilman. I represent the Lebanon County Agricultural and Horticultural Association. We used to have bees everywhere, on every farm. Why is bee-keeping so complicated a process now?

Surface. By modern hives and methods I averaged sixty pounds to the hive and want to know how I can get three hundred pounds. It used to be that farmers would have a few (probably less than an average of five) pounds per colony, annually. Then, also, bee diseases have greatly reduced the number of colonies. Again, the introduction of convenient methods of shipments and making sugar has put sugar ahead of honey in common use and the price of honey has advanced as it became a more rare delicacy.

Professor Surface proposed that we adjourn, whereupon Mr. Selser appealed for the use of the present time for election, in order that the evening be not broken into with business. Professor Surface had been of the opinion that this was a secondary, and therefore not an election, meeting. The matter being explained, the election was proceeded with, the first vice-president, Mr. Beard, in the chair. A motion was made, seconded and, without allowing for discussion, carried, to the effect that the present incumbents of office be continued for the ensuing year. The secretary-treasurer besought theAssociation to release him from the office and the president asked that his name also be withdrawn. The convention considered the exceptions taken to the motion too late and the ballot was cast by Mr. Selser, as follows: President, H. A. Surface; 1st vice-president, H. K. Beard; 2nd vice-president, Harold Hornor; 3d vice-president, Geo. H. Rea; secretary-treasurer, A. F. Satterthwait.

Mr. Selser moved that the salary of the secretary-treasurer be raised from twenty to fifty dollars. The motion was seconded and carried. The convention then adjourned, to meet at 7.00 P. M.

Evening Session.

The evening session was called to order by the president about the appointed hour, with some forty persons present. Miscellaneous business was declared in order.

Hahman. In behalf of the Philadelphia Bee-Keepers' Association, I extend to you the invitation of that Association to meet next year in Philadelphia. We have liberal accommodations, we meet in the Philadelphia Commercial Museum and have lantern facilities. We have an experimental apiary.

President. You have the nomination of Philadelphia as a meeting place. What action will you take?

It was moved, seconded and unanimously carried that Philadelphia be accepted for our meeting place in 1910.

The president then introduced John H. Miller, former president of the Lebanon County Bee-Keepers' Association, who would represent Dr. Henry Houck in delivering an address of welcome. Mr. Miller expressed his regret for the absence of the Hon. Henry Houck. In his stead he spoke briefly but very cordially in welcoming the Pennsylvania State Bee-Keepers' Association to Lebanon and assuring the members and visitors that their coming was highly appreciated.

Surface. Mr. Spokesman, I see by the program I am announced to make the response. Like the old woman who received some fruit preserved in brandy, I "appreciate the spirit in which it came." When Dr. Phillips gets the honey bee and the fire fly to combine so that the honey bee can work on the night-blooming Cereus, we will be a more prosperous body. By greater knowledge and closer application, we are accomplishing greater good to our fellow being than the discovery of the North Pole. The purposes of our Association are educational, to promote apiculture and to secure legislative protection.

We are here, Mr. Spokesman, not as a closed body, without a question about prices, nor for selfish purposes, but to improve the methods everywhere for all who will come. We are here in a fellowship which makes men broader. We shall not have come in vain if we have promoted improvements, if we have opened new and better avenues for progress. It pays to advertise, truly.

We will be honored to hear Dr. Phillips.

The Distribution of Brood Diseases in Pennsylvania.

By Dr. E. F. Phillips.

U. S. Department of Agriculture, Washington, D. C.

I have little doubt that the bee-keepers of this State and elsewhere will eventually set me down as a crank on the subject of bee diseases on account of my persistency in discussing this subject. I feel, however, that it is worth while to keep at the work of fighting the brood diseases of bees and the rapidity with which inspection laws are being passed in various States and the general agitation of the subject indicate that I am not alone in thinking this an important matter for discussion. There is no problem now before American bee-keepers comparing with this one in immediate importance; in Pennsylvania, the present agitation for the passage of an inspection law makes it imperative that the members of this Association learn all they can concerning the two diseases which are so widespread in the State,

There are two easily recognized and entirely distinct diseases of the brood of bees which are now known as European foul brood and American foul brood. I shall not now discuss the matter of symptoms and treatment which have been discussed previously before your association but shall, to-day, speak of the distribution of these diseases in Pennsylvania. Both are too prevalent in your State. Whether these diseases are spreading in Pennsylvania with considerable rapidity is difficult to ascertain but we are constantly learning of new locations where diseases had not previously been known to us. Part of this, at least, is doubtless due to more information concerning the presence of disease. Neither disease arises spontaneously due to unhygienic conditions of the colony but both are readily transmitted to perfectly healthy colonies from previously infected ones. A few years ago at a meeting of this association, I was informed that there was no disease in Pennsylvania. This hardly seemed creditable in view of the known disease in neighboring States. When the work on bee diseases was begun in the Bureau of Entomology, a record of the location of the samples received was kept and it was found that the only way to be sure of the presence of disease was to receive an actual sample for examination. Too many bee-keepers incorrectly diagnose their trouble, especially in regions where diseases are not well understood.

At the beginning of the season of 1909, the Bureau began the work of learning the distribution of the two diseases as fully as possible and since then samples have come in rapidly. Our present method is to record disease as present in a county when a sample is received from that county. This, of course, does not indicate that disease is present over the entire county but it certainly does indicate that all the bees in the county are in the danger zone and that every bee-keeper in the county should, as soon as possible, learn to recognize the disease.

Information of this kind should be of great value to bee-keepers who are asking for the passage of laws providing for inspection of apiaries. State legislators who are considering such requests have a right to know how great the need for such legislation is in the State and too often the bee-keepers are not able to furnish this important information. Several States are now considering this question and the outlook for increased protection from State sources is excellent.

We hope also to use this information for the purpose of sending publications on the symptoms and the treatment of disease to every bee-keeper whose name we can get in counties where either disease is recorded. Many bee-keepers do not recognize disease when it enters their aparies; some of them, many in fact, do not know that bees are subject to diseases; many more do not recognize disease even when many colonies are destroyed. We not infrequently receive requests for information as to how to prevent moths from destroying bees. Moth larvae are but an outward and visible sign of inward contamination and we frequently receive a sample of diseased brood from the man who reported moths after the matter is explained to him. This frequent occurrance and many other things which came to our attention indicate the crying need of an educational campaign on disease. The only way we hope for a rational control of diseases is to get the rank and file of bee-keepers to know these troubles promptly when they appear and to impress on them the necessity for prompt treatment together with a knowledge of how to treat. It will not suffice

to instruct only the members of the State Association or the readers of bee journals; there are too many others.

The map which I have prepared* shows that disease is present in Pennsylvania in the following counties:

American Foul Brood.	*European Foul Brood.*
Washington Co.	Erie Co.
Butler Co.	Crawford Co.
Indiana Co.	Lawrence Co.
Cambria Co.	Cambria Co.
Bedford Co.	Blair Co.
McKean Co.	Bedford Co.
Center Co.	Huntingdon Co.
Union Co.	Lycoming Co.
Wayne Co.	Bradford Co.
Bucks Co.	Wyoming Co.
Montgomery Co.	Lackawana Co.
Delaware Co.	Luzerne Co.
	Columbia Co.
	Montour Co.
	Northumberland Co.
	Bucks Co.
	Philadelphia Co.

European foul brood is also suspected in Westmoreland County and is undoubtedly present in Sullivan County, but we have had no sample from there. When our knowledge of disease conditions in Pennsylvania is more complete, it is highly probable that we shall find a belt of European foul brood extending from north to south entirely across the State. A map showing the distribution of these diseases for the entire United States shows that the counties on the border of Pennsylvania usually adjoin counties in other States where disease occurs.

Before this matter of disease inspection again goes before your State Legislature, you should be supplied with accurate information concerning the complete distribution of disease in the entire State. You need such information. It is hoped that during the coming summer the Bureau of Entomology will be able to get complete information concerning the distribution of both diseases in Pennsylvania. We meet with some opposition in this investigation of the distribution of disease for bee-keepers sometimes object to the fact that they have disease being known. Consequently we make it a rule not to give the name of the bee-keeper who supplies the sample, but we feel that it is due the bee-keepers of the country that they know where disease exists so that they may know how near they are to danger.

The bee-keepers of this country and of this State must take disease into consideration in their apiary management and must be ready to combat it as soon as it appears. There may be some who from careless habits are not able to combat disease, but the careful bee-keeper will win out in the fight and will not be compelled to abandon bee keeping as a pursuit. He needs State protection in the way of inspection to do it, however.

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* A map showing the diseases American foul brood and European foul brood in Pennsylvania was exhibited at the meeting.

P. G. Snyder. Can you safely watch and sort out the disease?

Phillips. Weakness of the colony is a good sign, but you should form the habit of looking for disease every time you look at comb for any purpose.

Klees. Will it spread in a few days?

Phillips. One colony may have the disease a long time without spreading it, but as soon as the colony weakens, the other bees rob and that is the time for rapid spread. Sometimes the bees will abscond, apparently because the disease was too offensive.

Question. What is the difference between the two diseases?

Phillips. The American foul brood diseased larva sinks down in a diagonal position in the cell and a pin will pull it out eight inches long. The European foul brood settles down with a rough surface and is yellow. It spreads more rapidly and is more readily stamped out than the American foul brood.''

Hornor. Will the absconding colony be any more likely to carry the disease than the shaken colony?

Phillips. I do not know.

Hornor. Using full sheets or starters, will there be any differences, pro or con?

Phillips. The safer policy is to compel the bees to build their full foundation from the merest starter. Three days after the egg is laid the larva will feed, so, delay in building cells is valuable.

Hornor. Would it be best to shake a second time, giving full foundation the second time, before any eggs were laid in the first start at building?

Phillips. That should be all right.

Surface. Is one shaking sufficient?

Phillips. We practice only one shaking and almost never have a recurrence of disease. Bees do more work with one shake than no shake. The cost of a quarter inch starter is very small. The cost of the full sheet is not the question to be considered.

Selser. The brood is about three-fourths capped in American foul brood and only about one-tenth capped in European foul brood.

P. G. Snyder. How does ''pickle brood'' compare with these others?

Phillips. That name covers many troubles. We do not know the causes of pickle brood.

Selser. In looking for European foul brood, do you depend on the yellow color and the absence of ropiness?

Phillips. Yes.

Selser. What would you say about putting affected brood above and letting the emerging bees come down?

Phillips. I prefer the shook method. When comb is perfectly dry the diseased bees may be shaken into the hive. If freshly gathered honey will shake out, shake over paper or burlap in front of the hive and burn the paper or burlap promptly afterwards.

Question. Why do some bees seem to be paralyzed?

Phillips. We do not know. It is called ''bee-paralysis.'' Sprinkling with sulphur sometimes seems to improve the situation, but we do not know the cause. We have made bacteriological examinations and find no explanation for the trouble.

Hahman. Some of the bee-keepers want to know how to introduce a queen.

Phillips. Introduce queens with your own candy and a clean cage. Destroy the candy and workers received with the queen. The candy seems to be the chief source of trouble from disease.

Selser. When disease has gotten into a big apiary, can it be completely eliminated for a period of five years?

Phillips. Yes. I know some bee-keepers who have had disease and the disease has not been in their apiaries for five years or more.

Hahman. I heard a Pennsylvania bee-keeper say he considered black bees immune. The Italians he secured all had it.

Phillips. I believe some bees are possibly more immune. The Italian bee seems to be slightly immune to European foul brood, but the German bee is now all mixed up.

Selser. Would you consider the one disease more easily combatted than the other?

Phillips. I consider one about as easily combatted as the other. Neither is hopeless.

Surface. I think if we secure a law, it should compel the keepers of bees to use only movable frame hives.

Phillips. New Zealand is so, but it might be unconstitutional in this State.

Surface. It is now nearly nine p. m. We will hear from Mr. E. L. Brown.

Origin and Progress of the Lebanon Bee-Keepers' Association.

E. L. Brown.

The Lebanon Bee Keepers' Association owes its existence to Prof. Surface and to Mr. S. K. Snyder of this place, and dates back to the fall of 1905. In August of that year a bee-keepers' meeting was held at the home of Mr. Snyder, with probably a dozen bee-keepers in attendance. Mr. Snyder had previously taken up commercial queen rearing and this meeting was held for the purpose of advertising his business. Among the bee-keepers present at this meeting were Prof. Surface and Mr. Wm. A. Selser, honey expert of Philadelphia. Mr. Selser gave a talk on up-to-date bee-keeping and Prof. Surface transferred a colony from an old box hive to a movable comb hive. This created a great deal of interest, especially the transferring, as this was something entirely new in our locality. At this meeting Prof. Surface explained the object of bee-keepers' associations. Later, Mr. Snyder made a canvass among the bee-keepers in his vicinity and all seemed to be in favor of organizing. In the beginning of December another meeting was held at the home of Mr. Snyder for the purpose of organizing. Prof. Surface, being present, was chosen president of the meeting and the Association was organized with eleven members. Mr. J. H. Miller, an experienced and successful bee-keeper, was chosen President, and Mr. S. K. Snyder, Secretary-Treasurer. Prof. Surface suggested the name, drew up a constitution, and gave such other information as was deemed necessary. Previously, bee-keeping was carried on here mostly in box hives by farmers and others who were ignorant of the fact that one hive was better than another, at least in some respects. Practically all the honey sold in this town was shipped from other places.

The Association at once decided to hold quarterly meetings at the home of some member, to urge and encourage the use of movable comb hives and to teach transferring. This has been a feature of all spring and summer meetings ever since. The results so far have been very gratifying. The Association has been steadily kept growing until now we have fifty-eight members who own, in round numbers, thirty-two hundred colonies, have movable comb hives throughout their apiaries and keep in touch with the bee-keeping world by reading good bee journals. In 1908, one member sold more honey in Lebanon than all bee-keepers put together in former years. The interest aroused at this first meeting has been kept up, in fact, it seems more interest is taken now than ever. Apiaries are expanding, our meetings are looked forward to with pleasure and, if present indications are any criterion, the efforts of Prof. Surface and Mr. Snyder in behalf of the Association, will not have been in vain.

President. Is there any discussion? I must say it is very gratifying to know the success of the transferring at that first Lebanon Association meeting.

Beard. How much honey was in the hive when transferred?

President. There was some. I do not know how much.

Beard. I heard there was a pound. Mr. Snyder fed that colony on brown sugar.

President. The more good work you do the better will be your successes. You have accomplished much. It is gratifying to see the spread of good work from a small beginning. From my office I shall be glad to aid any who wishes aid. You are to be congratulated. We will next hear from Prof. Klinger.

Apiculture in Juniata County and Vicinity.

H. C. Klinger.

Concerning our county, I cannot speak very glowingly. We have quite a number of bee-keepers keeping for one to six colonies, and probably only a half dozen have more than fifteen, the largest apiary having about seventy colonies. When Superintendent of Schools, I saw most or many of the colonies of the county. There are not now any straw hives but there are some boxes, practically the same. Some got enough honey for Sunday breakfast the year round. I have encouraged them to use improved hives. They destroy many bees in taking the honey; about two out of three swarms go to the mountains. Hunting bees in the mountains in the fall is reported to him as being right profitable.

The flora of Juniata County is not exceptional. I consider that Pennsylvania has a greater variety of honey producing plants than any other State. When we have the soft maple in blossom, there are few days good for the bees to work. This is followed by the dandelion which helps with the brood. Then follow the fruit blossoms, then the raspberry blossoms, and later the white clover. I find alsike clover with red clover is coming into favor for hay. I am sowing for the double purpose. Then we have sumac, followed by the locust along the bottom lands. I do not get straight locust honey but some bee-keepers in Juniata County do. The Pennsylvania Railroad has bought a number of farms and planted to locust, which will be in bloom in a year or two.

There is a lull of about two weeks, followed by the buckwheat blossom, and when that does flow, the flow is enormous. Bees often come in so heavily laden that they cannot complete the flight without resting. Then come the asters, the taste of which I do not like, and the goldenrod. The flow is almost continuous, but we depend on the buckwheat. In some localities basswood contributes some nectar. I believe there is much more room for bees in Juniata County and room for better work.

Now, concerning making the box hives illegal, I want to say that some frame hives in my neighborhood become as bad as box hives. One more thing,—about boxing or pinching a bee. I never felt a bee light to sting execpt that the sting lights first. I confess I have to kill otherwise, I kill by a clap of my hand.

I was amazed to see Dr. Phillips' chart of bee diseases. Juniata County has not yet been marked but is surrounded on three sides. We must be up to date or out of date. We have in our county Mr. J. T. Ailman, Secretary of State Grange, who is very definitely interested in supporting a bill framed by this Association. I thank you.

President. It is important that we convince the legislators, and the Philadelphia delegation is an important portion.

I notice two lulls in the honey flow in Juniata County. Crimson clover will fill in one break. It is a good cover crop for orchards and improves the soil. The other gap may be covered by the *Melilotus officinalis* (yellow) and *M. alba,* the Sweet Yellow and the Sweet White Clovers. I received a few seeds and sowed them along each side of the road as I went up the hill. It grows higher than one's head and fifty to seventy-five stalks from one seed. I believe the sweet white clover would be the best and longest enduring honey plant fit for planting in waste places.

Klinger. Buckwheat is sown over so long a term that the blossoms are almost continuous. Bob Seeds says he bought a tract of land where one could hardly raise an umbrella, but now, after growing sweet clover he sells soil at one and a half dollars per bushel.

P. G. Snyder. I know of sweet white clover which has been blooming long enough to be in seed and yet it continues to be in bloom.

Klinger. When should it be sown?

P. G. Snyder. It blooms the second year, not the first. I simply raked some waste ground and sowed the seed.

Klinger. I pulled up a plant along the railroad, saw its nodular roots, examined it and found it to be sweet white clover (*Melilotus alba*). It grew on a railroad bank. It certainly is an enriching plant.

Hahman. The yellow and the white sweet clovers grow in many places about me, the yellow about two weeks before the white. The time to sow is very early in the spring.

Klees. I saw it about the railroads and waste lands and wondered if it was introduced by railroads.

President. I had wondered how neighbors would view my sowing the seed but no question indicated objection and now they would be unable to destroy it. It grows in some places where a plant could hardly have been expected to root.

P. G. Snyder. Did you mean that crimson clover was better than others for cover crop or only when plowed down?

President. The roots do good, even when the crop is cut.

Snyder. What percentage additional gain is there in plowing down?

President. The tops are helpful to the soil when plowed under, and if seeds are formed before plowing down, it re-seeds itself.

Hahman. I want to know about bees working alfalfa.

Fruit and Honey: Can What You Can.

Mrs. H. K. Beard.

There is no mystery or luck about the successful canning of fruit; if properly done, failure is almost out of the question. The fruits or vegetables should be barely ripe, never over-ripe, perfect of their kind, or at least with no fermentation started in them and the sooner they are taken from tree or garden and sealed up in jars the better. New fruit jars are best put over the fire in cold water to cover them, brought slowly to a boil and slowly cooled; then they will stand greater extremes of heat and cold.

If particular about keeping the fruit in shape or where a large amount is to be done at once, it is usually put uncooked into the jars and covered with the honey, and the jars are then set into a larger boiler with a perforated rest under them to keep them from the bottom. Fill the boiler with cold water nearly to the shoulders of the jars. Screw the tops on rather loosely, put the cover on the boiler and bring to a boil. Both fruit and vegetables can be done up in this way; as a rule the latter are more difficult to keep than fruit and require much longer cooking.

Raspberries. Twelve quarts of raspberries require two quarts of honey. Put two quarts of the fruit in the preserving kettle and heat slowly on the stove. Crush the berries with a wooden vegetable masher and spread a square of cheese cloth over a bowl and turn the crushed berries and juice into it. Press out the juice and turn it into the preserving kettle. Add two quarts of honey and put on the stove. When the syrup begins to boil, add the remaining ten quarts of berries. Let them heat slowly. Boil ten minutes, counting from the time they begin to bubble. Skim well while boiling. Put in cans and seal.

Cherries. Take six quarts of fruit, one and one-half quarts of honey. Measure the cherries after the stones have been removed. Pit them or not, as you please; if you pit them, be careful to save all the juice. Put the honey in the preserving kettle over the fire until it simmers. Put in cherries and heat slowly to the boiling point. Boil ten minutes, skimming carefully.

Pears, plums and peaches. You take the weight of the fruit in honey. Plums should boil about fifteen minutes, peaches and pears from twenty to thirty minutes.

Blackberries are put up same as raspberries.

Strawberries. Four quarts of fruit and one and one-half quarts of honey, boil ten minutes, from the time it begins to boil, skim well.

Rhubarb. Equal weight of fruit and honey; boil ten minutes.

Apples. Two quarts of fruit and one pint of honey and a half pint of water; boil twenty minutes.

Corn. Two quarts of corn cut off the ear, one-half pint of honey, one pint of water, four even tablespoons full of salt; boil twenty or thirty minutes, then put in jars or bottles.

Tomatoes. Three quarts of tomatoes, one pint of honey, three tablespoonfuls of salt; boil same as corn.

Corn and tomatoes. Two quarts of corn, two quarts of tomatoes, one and a half pints of honey, one-half pint of water, five even tablespoonfuls of salt; boil thirty minutes, then seal.

Fruit juices. Grape, raspberry, blackberry, cherry, plum, and peach juices are made as follows: one quart of juice, one pint of honey; boil from ten to twenty minutes.

President. The paper is open for discussion.

Snyder. I would like to see that paper published in *Gleanings.*

Hornor. How is grape juice preserved with honey?

Mrs. Beard. In the same manner as the other fruit juices.

Selser. I think that paper is very good and should be put in the minutes.

President. Any recipes giving information how to preserve refreshing fruit juices are very acceptable. Nothing is more refreshing or healthful than fruit juices.

Concerning alfalfa, I feel I should say something in reply to Mr. Hahman's question. I have seen bees visit the bloom, but usually it is cut too early for nectar flow.

Hahman. I just saw it in bloom yesterday. The patch I have observed is now doing nicely. It was cut once and the grass did not grow after. The alfalfa though is about eighteen inches tall.

Klinger. I move that we adjourn to 9.00 a. m. tomorrow.

The motion was seconded and carried, and adjournment followed.

THURSDAY, SEPTEMBER 9TH, 1909.

The convention was called to order about 9.10 a. m., by the President, who commented on the exhibits which had been placed in the hall and asked for comments from the exhibitors. Mr. Selser called attention to a number of copies of "Gleanings in Bee Culture," certain numbers of which appealed to him as of especial value. They were offered for free distribution, with an invitation that those not already subscribing should subscribe for it at a special rate for six months. Discussion on general matters was deferred to a time when the prescribed program shall have been given place.

Accomplishments and Aims of the Philadelphia Bee-Keepers' Association.

F. Hahman.

It is to me a pleasant task to address you, on a subject which is dear to my heart.

The Philadelphia Bee-Keepers' Association was organized on Jan. 23, 1882, nearly twenty-eight years ago; it can therefore claim to be classed among the older Associations pertaining to bee culture existing in the United States to-day.

Its aim is tersely expressed in Article II. of its Constitution, viz: "The object of this Association shall be the promotion of scientific and practical Bee Culture, by forming a strong bond of union among Bee-Keepers." This Association has been singularly successful in maintaining this strong bond of union among its members; the loyalty

and devotion which they have brought to it has acted as an inspiration in all the work it has undertaken and carried to successful accomplishment.

The great aim of the Association is to help and counsel the beginner, and it has made hundreds of bee-keepers who would have dropped the pursuit in despair, if it had not been for the advice and help furnished by the Association.

The Philadelphia Association never had to cope with dissensions or quarrels, and stands to-day as one of the best organized and progressive bodies of bee-keepers in our land. Its home is at the Philadelphia Commercial Museums, and it is the pioneer Association to possess an experimental apiary of its own. It was also the pioneer in the holding of outdoor or field meetings and the practical demonstrations at these meetings resulted in its greatest achievement, previously mentioned, the "making" of bee-keepers from the raw recruits. This one accomplishment alone has been worthy of all the efforts put forth by the Association. It bore fruit in an increasing, faithful and loyal membership. The number of lady bee-keepers it has graduated is remarkable.

The most noteworthy work performed by the Association was the managing of the bee exhibits of the Pennsylvania State Fairs held in Philadelphia years ago. It is regrettable that the discontinuance of Agricultural Fairs in Philadelphia put an end to this useful work of the Association.

Few bee-keepers who have never seen an exhibit of this character, can realize the impetus and enhancment which can be given to an apirian exhibit by an Association which is not directly interested commercially, but determined to show bee culture to the visitor from its most interesting viewpoint. The exhibit was in charge of several members each day, who explained and lectured and demonstrated. The building was crowded at all times and the men who sold honey reaped a harvest.

Another incident in which the Association did good work was as host of the National Convention in 1899. For this convention the National Association, to obtain low railroad fares, had chosen the time fixed by the G. A. R. for its encampment in Philadelphia. This encampment occurring the year after the close of the Spanish-American War, when a wave of patriotic enthusiasm had swept over the country, assumed such large proportions that it was a difficult matter to obtain accommodation for the bee-keepers in the overcrowded city.

After the convention, the late Dr. Mason, who was Secretary of the National Association, remarked to your essayist that "at no previous convention was he relieved of the worry and work pertaining to a convention as had been done for him at Philadelphia." At this convention was given the first illustrated lecture on bees, by W. E. Flower, who at present is President of the Philadelphia Association, another forward stride in which the Philadelphia Association took the initiative.

The scientific side apiculture has received much attention from the Association; it has attracted professors, teachers and scientists, located in a large city, on account of the practical side of bee-keeping which these men were eager to witnesss, and who in return gave freely of their knowledge, by delivering lectures and explaining subjects under

the microscope. One of these men whom you all know, Dr. Phillips, at that time connected with the University of Pennsylvania, and a close student of bee anatomy, gave many interesting talks at the meetings. When Mr. T. W. Cowan, editor of the *British Bee Journal*, visited America in the fall of 1887, the Philadelphia Bee-Keepers' Association was the only organized body of apiculturists who tendered him a reception; this was held in Carpenter's Hall, famous as the meeting-place of the First Continental Congress. In writing of his trip through the States, Mr. Cowan, in a subsequent issue of the *British Bee Journal*, remarked "that he met the most scientific bee-keepers in Pennsylvania," certainly a great compliment to the Association.

The Philadelphia Association is also the possessor of a good library on bee literature.

My object in giving you this outline is not to exploit the Philadelphia Association, but to inspire you and to arouse your enthusiasm, for I take it that you all possess a love and devotion to bee-keeping, or you would not have travelled miles from home to be here. And when you return to your homes, look up a few of your neighbor bee-keepers, and start a local association of your own. Permit me to relate to you about the beginning of the Philadelphia Association which had its inception in just that way. At its first meeting there were present just eight men who represented not over twenty-five colonies of bees. One of these eight stated that his bees were a hutch of rabbits. This man, after he had seen hives opened and bees handled became deeply interested, and the rabbit hutch soon gave way to an apiary. Every member of his family was enrolled as a member of the Association, and to the day of his death, he was one of the most earnest workers, and the Association owes much of its prestige to his untiring energy.

Although your association may not grow to the proportions of the Philadelphia one, however, with a little determination, push and grit, I am sure you will succeed, it will help to form the foundations and bulwarks, necessary to the upbuilding and welfare of our State Association.

Selser. I think this paper deserves as great publicity as possible. Perhaps the President and Secretary will find an opportunity to put it forward.

President. I think this paper belongs with the paper of last night. Both Associations deserve great credit. The Lebanon Bee-Keepers' Association must not be discouraged. They have accomplished much, I tell you, as was said last night.

Turning to the program, we have next the pleasure of hearing from one of our most progressive and successful queen breeders, Mr. Penn G. Snyder.

Qualities Secured in Queen Breeding.

Penn G. Snyder.

Ladies and Gentlemen, and Members of the Pennsylvania State Bee-Keepers' Association:

I have been asked to give a short talk on the qualities to be secured in queen breeding. I feel that there are other members better quali-

fied to talk on this subject, but as I have been asked to do so, will do the best that lies within me.

To get good results in breeding is a large order in any class of animal life, but it is especially so with bees. The advancement made by queen breeders in the last 25 years has been very small, although they have advanced; the quantity of honey according to statistics per hive or general average of an apiary taking the country as a whole, has increased, but not as much as desired. But there are certain strains of bees from different apiaries which give far better results.

In regard to gentleness, I feel sure advancement has been made, and in regard to beauty, no one will doubt it, if he will compare a hive of Italians with a hive of Golden Italians.

While breeders of other varieties of stock can readily select the best of their units for propagating, the bee breeder has great difficulty in choosing the male half of the union, as the queen bees for reasons not at present known, will not mate in confinement, such as a large wire or cloth cage where prime drones may be flying in large numbers.

We must run our chance in the open air flight, but we can choose the queen mother of the drones, by trapping down all drones that are not of known excellent stock if not of line pedigree.

The ideal breeding queen, is one that is very prolific with strong honey gathering ability, next we want *gentility, strength, hardiness,* and if possible, *beauty.*

First. She must be extra prolific, for without bees in great numbers you will seldom secure a large surplus.

Second. The workers must be vigorous, with strong wings and long tongues, for everything else aside, the bee with the longest tongue can reach the greater number of separate varieties of blossoms.

Third. She must breed *workers* that *work.* You will see some hives rushing pell-mell over themselves and everything else, eager, hungry to secure the nectar—that's what we want.

Fourth. She must produce workers that are gentle. Who has not had a hive at some time that he did not dread to go near, which often caused the whole apiary to get into an uproar. We must have gentle bees.

Fifth. The age of the bee should be considered—it costs money to raise worker bees, and if we can add a week or two to the age of our neuters we are in better position to secure any crop that may come.

Sixth and last. We should secure as pretty a bee as possible. With some bee-keepers, such as those who reside in cities or villages, gentleness is absolutely necessary and beauty is a great addition as well as a tremendous attraction to the bee-keeper.

Then the quality of the queen must largely depend on the quality of the drone with which she mates.

He must be first of all, pure—of good honey gathering stock; next, he must be of good size, well fed, so as to be in prime breeding condition.

Remember a queen possibly mates only one drone in her lifetime—it is absolutely necessary that he be vigorous, healthy and strong, if you expect to get a good fertile queen, which will fill the hive with neuter or worker eggs.

As all life is but the continuation of the life that gave it birth, we must have selected parents of known value. We can never make very

much progress until we have some sort of breeding standards such as the breeders of farm stock now have.

Many breeders work against themselves. I believe in almost all forms of animal life, the daughters inherit the character and disposition of the father and the sons that of the mother. Too many breeders look to the records of the breeding mother, but let the male or drone run to chance. You can never make progress along that line—you must select the male with as much care as the female—it is almost as easy.

Remember the daughter or worker bee takes after the drone—a poor drone means poor workers, the next generation would revert and the mother's blood would show in greater worker ability.

What progress you get from the queen alone is slight. Her daughters which are sold to the customers of such a breeder, will not show as good points as the next generation or workers of the granddaughter of the breeding queen mother, when the grandmother blood or traits revert back to the female side of the issue.

A variation or trait will often disappear in the next generation, yet it may be found more strongly developed in the next generation following, and if so, it can be made a racial character.

If we know the hereditary characteristics of any one strain, we can then work with intelligence, by crossing *pure* strains, and as heredity is that which is transmitted to the offspring of all past environment or life actions of the long line of forefathers we will be able to get results such as we dream of.

Selection is the cornerstone of all breeding, the breeders having the quickest judgment will get the more practical results. It is recognized that pedigreed or selected stock in any class of growing life will produce better results than scrubs.

We all know that no two of the issue from the same parents are alike in size, mental ability or strength—that shown the variation in even the purest of lime bred stock.

The duty of the breeder is to cause as much variation as possible and to select the good qualities thus secured, and by holding the good characteristics which he can do by using Mendals Laws—he will secure a better race of bees.

Heredity coupled with variation is the lever by which all progress is to be made—either alone would be without value.

The breeders should use the best methods of propagating his queens, no larva poorly fed can produce a large fertile queen—it is recognized that an excess of food will cause more advance variation than any other known cause—the answer is *feed—All* breeding or cell building hives.

The average queen breeder cannot make the annual advancement he should, because he cannot use the numbers necessary for the best selection of breeding stock.

The pick of one thousand (1,000) queens is as low an average as he should use to choose from for his breeding queens, and very few breeders can use that number to select from.

Burbank in his experiment frequently uses as high as five thousand (5,000) individual plants to make a choice of.

The aim of all breeders should be the production of better bees, better honey records, better all-around stock.

Some are working for scale results in honey—the largest yielder against everything, providing she is purely mated—others are breeding and selling hybred or a cross between two distinct races as the ne plue extra of honey gatherers.

Now we want first of all, honey, but it is necessary to sacrifice all other points for the additional few pounds of extra honey. It does not seem necessary to me that we should be forced to raise ugly, vicious bees to gather the greatest amounts of honey.

Time mixed with brains and much patience will overcome all obstacles.

Some breeders are selling to-day good, prolific, gentle, vigorous queens, that are filling the hives with honey and are giving entire satisfaction to those who buy them.

It is easy to see that it is possible to get what you want if you work for it by systematic, scientific methods.

The production of the strain of five (5) Banded Italians or Goldens, proves what can be accomplished by intelligent and careful selection.

Klees. What constitutes a golden queen, the three, or five banded form?

Snyder. That should be clearly defined in the journals. A golden queen should be all golden, five-banded. The offspring may be rather dark, but the second generation should again be all golden.

Klees. I understand from *Gleanings* that a three-banded queen might be a golden queen.

Snyder. A golden queen should never have less than four bands and should have five.

Selser. I consider that it would be educational to many here if Snyder would exhibit two or three true golden queens. Some people who handle bees do not seem to know a band from a streak of fuzz. We are here for education as well as otherwise.

President. That suggestion is excellent. I trust Mr. Snyder will bear in mind that we anticipate the privilege of seeing some true golden queens from his apiary this afternoon.

Snyder. I will show you some true golden queens, at your pleasure.

Extracted Honey.

Harold Hornor, Jenkintown, Pa.

I do not feel that I am capable of handling the subject given me, but will endeavor to give you the method which I pursue in my yards. These yards are thirty miles from my home, so you will see it is quite necessary to work by some plan that will take as little labor as possible, and give best results.

I think the honey crop hinges on what we do with our bees after the honey has been taken. In my section I mean the clover harvest. All colonies are re-queened at this time as quickly as possible, with the exception of a few colonies in each yard, which have some extra good queens, where the bees have come out strong, built up quickly, and have been extra good honey gatherers, these we breed from, do not try to get color but results in pounds of honey.

This is the beginning of the preparation of the bees for the next season's crop.

Young queens will go to laying soon after being introduced, while the old ones will not lay for some time. Thus, we have plenty of young bees to gather fall stores and to go into winter quarters.

About the latter part of September we go over all hives and see that the queens are all right, and plenty of bees, if not enough bees, unite until strong enough.

All colonies are wintered on summer stands, two stories, eight frames each, the top story well filled with honey, and some in the lower story is good but not necessary.

After all honey is put in upper story and the examination is completed, the cover and edges of hives are scraped and the cover put on, the bees will seal it down quickly. If this work is done too late, they will not be as tight as the bees want them. These covers should not be disturbed until spring.

We close the entrances on the approach of cold weather so they will be three by one-fourth inches.

The bees are not disturbed now until there comes a day in spring that is warm enough in section where my bees are located, central New Jersey, about 15 March, to look them over, to see condition, which is marked on our record slates.

They may need more stores, but they rarely do. It might be better to take some away, and replace them with empty combs, this breaking up of the brood nest, I think causes the queen to lay more eggs than if left entirely alone. I do not believe in spreading brood too fast as there may come a sudden cold spell and chill the brood so that much of it will be lost.

The whole yard is gone over in this way as quickly as possible, two men handling from sixty to seventy colonies a day.

The next examination is made in ten days or two weeks, and the same thing is done except to put the honey in the lower story to be used as needed. If too much honey is in the upper story, it will crowd the queen, as all brood rearing will be carried on in the upper story, it being warmer and further from the entrance.

By the next two weeks, or the beginning of the fruit bloom, the upper story will be about full of brood and honey, we now reverse the stories, putting the bottom one on top.

If no brood is in this, put two frames of open brood in the middle.

Now, nearly all this brood rearing goes on in this story, it being the empty one, but is on top where the heat is and brood rearing is carried on at a rapid rate.

About every ten days the hives are all opened up and either reversed or the brood nests disturbed a little.

By the time apples are in bloom our colonies have nearly both stories full of brood, they being very strong, work on apple bloom to a good advantage, storing quite a little, filling all frames well. This honey is used very rapidly in brood rearing now, so that none of the old honey or the new is left at the time clover commences. The colonies are very strong and ready for all there is to be had.

The queen has access to two stories until clover opens, and commences to yield well, and frames are well filled.

Now, all hives are gone over and we take the frames with the most pollen and unsealed brood and put in lower story, with the queen. The honey board is put on this, then set on empty combs, six to the

body and one of the brood from the body that was on top; these are spaced.

The body of brood is put on top, and the seven frames of brood and honey spaced.

There is no more need of bothering with the lower story, until after the harvest, when we re-queen.

After the honey boards are put on, we keep close watch of all hives and empty combs, or full sheets of foundation are added as needed, placing these next to zincs, placing in this body two combs with some honey in them so as to start the bees at work in them more quickly.

The colonies run thus are four, five and six stories high by the end of the honey flow.

No honey is extracted until thoroughly ripened, which means, nearly all capped over. It is a mistake for bee-keepers to get it into their heads that they can ripen honey as well as bees, if they take it off before it is capped.

After the extracting is finished, and we have queens on hand, now is the time to put them in, as there is but one story to look over to find the queen.

If no young queens or after young queens are in put zinc above second story, giving queen two stories of good worker combs and thus we have our start for next season.

Snyder. Honey from aster is golden.

Hornor. Well, it is somewhat amber. Some say it is nearly white, but it is not so with us. Occasionally something darkens honey put away while the aster flow is on, but that is not the aster. I do not know what flower it is.

Klinger. Do you change the frames?

Hornor. Yes, distributing the brood.

Snyder. How long do you leave a nucleus queenless?

Hornor. A day might not hurt.

Question. How do you double up?

Hornor. I leave the poorest colony on the bottom board and kill the poorest queen. Then I lay two thicknesses of newspaper over the top of the lower story and set the other story on top.

Question. Why do you use paper?

Hornor. To let them get together gradually by eating through paper.

Miller. I had a colony which worked up into the super one fine, warm day and I could see no flight. I listened and found them all in the super. I uncovered them and let them fly, then I found they had run out of stores below.

Hornor. The day is not nice enough for them if they stay in the second story. Much loss results from coldness and they go up to keep warm.

Klees. Do you, Mr. Hornor, approve of shade?

Hornor. I do not. I want ventilation but no shade.

Snyder. Do you like top ventilation?

Hornor. I prefer bottom ventilation; if seven-eights bottom is not enough, raise to two inches, if necessary.

President. Mr. Hornor, do you not want shade for comb honey?

Hornor. Or, for comb honey shade is all right.

Snyder. Why not ventilate by lifting the tops?

Hornor. A draught up through the hive is bad for comb.

President. Mr. Hornor, do you use single or double hives part or all the year?

Hornor. I use single-walled hives the year around, but I keep lots of bees and honey.

President. I consider locality important in this matter. I believe that along the mountains and even where I am, protection is necessary.

Snyder. I have about sixty-seven colonies at one place and forty-eight at another. I use a special cover I make myself—two thicknesses of three-eighth inch wood with a dead air chamber between, covered with paroid roofing, which extends down the sides of body a couple of inches, making the cover perfectly water-tight and it does not warp or twist, but I believe the bees do as well without anything except a good, tight open air cover.

Hornor. The bees make more propolis and do more gluing when pads or extra covers are used.

Hahman. I use a wind protection; I consider it important, also, to keep the rain off the hive.

Snyder. If the moisture does not get in, it does not matter outside.

President. When the hive is well painted it will keep dry.

Hornor. Bees will not heart up and fly so soon with a second story as without. I like the weather to govern the bees. Protected, they may come out too soon and be chilled.

President. I like the shade, winter as well as summer.

Selser. Box hives are sealed up and remain sealed for ten years, occasionally.

Snyder. I am glad that Mr. Selser mentioned that.

Selser. Mr. Hornor has from twenty-five to forty thousand bees to a colony; he gives them one month of Indian Summer to seal up and does not again open them up before spring.

President. In the old box hives, the bees below the honey cap are not disturbed and are allowed a liberal supply of honey. Mr. Hornor allows forty pounds of stores.

Hornor. Sometimes eighty pounds.

Klees. Two old box hives, of which I have knowledge, have been wintered successfully for forty-five years without protection.

Hornor. Often I get better bees from box hives than from frame hives in the spring.

Klinger. In my county, box hives lose as well as frame hives.

Klees. I would not wish the impression to get out that we consider the box hive useful. Those that winter over successfully are tight; that is the point.

President. This is a question of wintering, not of honey production.

Klinger. Perhaps the shape of the box hive is an advantage.

Hornor. I consider my second story plan accomplishes the same advantage, that of giving them a warm place at the top of the hive.

Klees. How about keeping a space at the top of the hive?

Snyder. It would be suicidal in a one-story hive not to have that.

President. We have two more addresses. We will hear from Mr. Selser.

Honey Dew and the Pure Food Law.

Wm. A. Selser.

The pure food law as now upon our statute books requires the bee-keeper, in selling honey, to brand every package with a truthful, accurate statement of the contents therein. For instance, for many years all white honey has been branded "White Clover"; the terms have almost become synonymous, when as we all know, only a small part of white honey is strictly and entirely white clover. One large firm in Brooklyn has been putting up a brand that has become famous in the way of light amber honey, which they call "Orange Blossom." The real facts are, while the honey comes from Florida, it is actually from saw palmetto bloom and never saw an orange tree. This branding is ruled out by the recent law. If one puts the brand of any flower on his honey, every particle of that honey must be secured by the bees from that identical flower.

Again, the law does not forbid the bee-keeper putting in glucose or glycerine to cheapen his honey or to keep it from granulating, as the case may be, but if he does this, the exact amount he has added must be stated on the label. If the bee-keeper is not entirely satisfied that his product is from one particular flow, he may simply brand it "Pure Honey." There could be no fairer law, in my estimation, nor one that could have brought more beneficial results to the bee-keeper. In fact, it has inspired more confidence among the grocery trade and in place of the bee-keeper being looked upon with suspicion when he offers his product for sale, a much better feeling and tone has arisen as a result of this law in the last three years.

The pure food law practically says that honey is the nectar of flowers gathered by the bees. The writer has assumed the position for many years that the nectar as produced in the blossoms is different from any other known natural sweet. In carrying out this theory some eight or ten years ago I advertised to pay $10.00 an ounce for any nectar that could be procured from any blossom throughout the United States. I secured, among others, a sample from California under an affidavit that it was extracted by a pipette, and found it sustained my theory that this nectar was in reality levulose; all other natural sweets being dextrose. This coincides with the requirements under the chemical standard of pure honey, that it must all show a levulose rotation or a turning of the plane of the polariscope to the left. Now then, honey dew is not nectar, but "bug juice" or a product of the aphis. Therefore, it is largely dextrose—sustaining my theory as heretofore stated. This is why honey dew cannot be classed under the pure food law as honey, which seems to me is very fair and just. But it can be sold by branding it "honey-dew honey."

Some nine or ten years ago I received a number of samples of honey dew from the central part of this State. I analyzed them and found them to contain mostly honey dew, but not in such large proportions as the honey dew of this year. So I would say from close observation of almost a quarter of a century that this has been the first year honey dew has been so general.

Desiring to know the practical results from all over the United States, and hoping to obtain some information that might be helpful

to the bee-keepers to-day, I sent out a large number of letters to the large bee men all through the country, asking the following questions:

1. Have you found honey dew more prevalent during the rainy or the dry season?
2. During what months of the year have you found it most prevalent?
3. Do bees gather honey dew when there is another flow in the field?
4. Have you had any experience with bees wintering on honey-dew?
5. Have you had experience with selling honey dew to the baking trade? If so, how does it work?
6. Do bees swarm out as quickly on honey dew as on regular nectar?
7. What is the average price you have obtained for honey dew?

Among the replies received was one stating that such a determined effort to get at facts as our Pennsylvania bee-keepers were making puts us at the top of the list as progressive bee-keepers in investigating this interesting subject. Boiling down the voluminous correspondence in answer to these queries, I report the following:

First Answer. Connecticut, Mississippi and Colorado report "dry." Michigan, Kentucky, Texas and California, "wet."

Second. California reports March and April. Mississippi, April and May. Colorado, June. Michigan, July. Texas, October.

Third. Connecticut, Colorado—"Think not." Michigan, Kentucky, Mississippi and Missouri—"Yes."

Fourth. Kentucky says "no." They find aster the best wintering honey and use honey dew to build up in the spring. New York states if the taste is not rank, the bees winter all right on it. Missouri reports if the bees can fly all winter, it is all right. Colorado states they lost half of their bees from it in the winter of 1908-09. In Texas they will winter well.

Fifth. Most of the states report they have not had very much success trying to sell it. Dr. Miller states that he hurt his trade very much some years ago when he had a crop of it, for people thought he was adulterating his good honey, as the taste was so different.

Sixth. Michigan, Mississippi, Missouri and Colorado—"Yes."

Seventh. Dr. Miller reports he sold it at the same price as other honey because he knew no better. Michigan and Missouri report getting 10 cents at one time. Colorado used all their crop for spring feeding. In Texas it sold for five and one-half cents.

From all this correspondence I glean the following facts:

1st. Honey dew is fine for building up in the spring or increase in the summer.

2d. Very dangerous as a winter food in northern latitudes.

3d. Very bad for a good reputation.

4th. Against the law in quantities over 20 per cent.

I have here a large number of samples in test tubes which may be helpful to the bee-keepers in arriving at some idea regarding the color line to determine the quantity of honey dew in his product.

Sample No. 1 contains 10 per cent. of honey dew mixed with white clover honey. If your honey is no darker than this sample, it will pass inspection.

Sample No. 2 contains 20 per cent. of honey dew. Should your

honey show this color and you have a suspicion that your bees have been working on honey dew, it would be wise for you to have it examined by a chemist before selling it as pure honey.

Sample No. 3 contains 30 per cent. of honey dew. Honey of this shade which has been gathered during a honey dew flow would not pass.

I also have samples running up to 40 and 50 per cent. to show the average of the honey dew crop of this season. Of course, as you understand, we have amber honey and a fall honey which would duplicate these colors and yet might not contain a particle of honey-dew. But this year, through our State honey dew came during the white clover flow, with practically nothing else in the field and therefore, if you could carry these colors in your eye, it would be very helpful as a simple test for judging your own product.

Selser. I wish to present a resolution:

WHEREAS, While we have been greatly inconvenienced in our business by the passage of the late National Pure Food Law, on account of the requirements of said law compelling us to brand accurately, if at all, each bottle and can of honey put up, with the exact flowers or honey flow from which it is gathered, thus entailing the purchase of new, and the re-labeling of old, packages, this has been a great benefit to our business, establishing more confidence in the honest and correct labeling of our product and more confidence between the producer and consumer.

Therefore, it is resolved that we highly commend the action of Dr. Harvey Wiley in securing this pure food law, and his untiring efforts to have it enforced in such a way as to make it highly beneficial to the consumer;

It is further resolved, that we do all in our power to assist Dr. Wiley in his noble efforts to have an honest brand on every package of food put up.

The resolutions were unanimously adopted.

Snyder. How is it possible to brand?

Selser. If you brand, it must be true. It is not necessary to brand at all.

President. We will now hear from Mr. Beard.

Conditions of Honey Production in Lebanon and Lancaster Counties.

H. K. Beard.

Mr. President, Ladies and Gentlemen:—As the time for adjournment is drawing near, I shall speak but briefly. Throughout the counties of Lebanon and Lancaster the honey plants are the same as in Juniata County, concerning which Prof. Klinger has spoken at length. Our honey dearth began about July 4th, this year, and the bees filled their supers with honey dew. This condition is so far reaching throughout these counties and there is so little honey unmixed with the honey dew that it is a problem to know how to dispose of it.

Lebanon County bee-keepers nearly all have improved hives. This is due to the good work done by the Lebanon Bee-Keepers' Association, of which Mr. Brown has given you a comprehensive history. Some parts of Lancaster County are also moving to the front, no doubt in

part through the favorable influences of our Lebanon Association, while other parts of the county still hold to the box-hive methods. When I asked why they kept bees, I found it was largely a habit, accompanied with a sentiment that it is bad luck to sell bees. Some claim they can do just as well with the box hive as with the frame hive, and one claimed he could do better with a box hive made by himself than with a modern frame hive.

Prof. Klinger offered some comments upon honey dew honey.

Beard. I had "bug juice" one year before we knew here at Lebanon what it was. I had trouble with swarming, but the bees all wintered over, essentially entirely on honey dew honey.

Selser. We must not depend upon the success of an exception. When it is dangerous to sell, it is dangerous to use for wintering over.

Klees. Perhaps Mr. Beard had honey dew only in the super and not a heavy percentage.

Snyder. The honey dew is hurtful, is it not, by reason of an excess of indigestible substances, and then only when the bees are restricted by winter cold?

President. Yes.

Klinger. Is honey dew a secretion or an excretion?

President. Honey dew is regarded by some an excess secretion and bears a direct relation to the plant louse as milk does to the cow, and is thus differentiated from excreta. Prof. Comstock justly regards it as an excretion.

Klinger. Many people are asking what it is, and some verily believe it has fallen from the sky. "Where ignorance is bliss, it is folly to be wise."

President. Will we complete business now or in the afternoon?

Klinger. Now.

President. I will appoint on the resolution committee Messrs. Selser, Klinger and J. H. Miller; on the exhibits committee Messrs. Hahman, P. G. Snyder and Beard. What action will you take concerning a date for our next convention?

Beard. I think this may be left to the Philadelphia Bee Keepers' Association.

Klees. I move that we meet the last week of September.

The motion was seconded and carried.

Klinger. Might we not meet late in August and use the Atlantic City excursion rates? It is a material consideration.

Hahman. I would like the motion to be withdrawn and the matter left to the Executive Committee.

The motion was withdrawn by Messrs. Klees and Selser and the matter was thus left by mutual consent to the Executive Committee.

President. The Secretary tells me the Association confronts embarrassment, there being on hand fifty-four dollars and six cents, with instructions to have five thousand circulars printed and mailed and to raise the salary of the Secretary, while the publishing of the report is pending and there are necessarily some running expenses.

Mr. Hahman moved that the circular be put forward and the publishing of the report be left to the discretion of the Executive Committee. The motion was seconded and carried.

The President invited any persons present who were not members to join our Association. Mr. Snyder stated that any bee-keeper with

five hives buys ten dollars worth of goods and the discount at ten per-cent. pays the annual dues. Prof. Klinger made further comment favorable to membership in the Association.

The convention was then adjourned, to meet at the apiary of Mr. Shilling in the afternoon.

Thursday Afternoon. Session at Shilling's Apiary.

The convention was called to order by the President. The report of the Resolutions Committee was called for and submitted as follows:

We, the Pennsylvania State Bee-Keepers' Association, in convention assembled September 9th, 1909, submit the following resolutions:

Resolved, That we thank the Lebanon Bee Keepers' Association for their hospitality in entertainment at this, our annual meeting.

Resolved, That we thank the Press for their courtesy in publishing the proceedings of the meeting.

Resolved, That we thank the Department of Agriculture at Washington, D. C., for the assistance they give us through the work of Dr. E. F. Phillips in the investigation of bee diseases.

Resolved, That we thank the President and other officers of the Association for the faithful performance of their duties and their efforts in trying to secure the passage of a foul brood law.

Resolved, That a copy of these resolutions be sent to the respective parties mentioned in these resolutions, and to the Lebanon press for publication.

Respectfully submitted,

WM. A. SELSER,
H. C. KLINGER,
JOHN H. MILLER,
Committee.

(Signed)

The report was adopted as read. The report of the Exhibits Committee was then called for and presented as follows:

Your Committee on Exhibits would report that there have been shown two exhibits of comb honey. Prof. H. A. Surface, of Mechanicsburg, Pa., exhibited white clover honey finely capped to the wood, honey of excellent quality. Mr. A. M. Schaffner, Hanoverdale, Pa., exhibited six sections of white clover honey in excellent quality, shown in an ornate sample case.

Mr. W. A. Selser exhibited a sample array of honey mixed with honey dew.

Prof. Surface exhibited Elberta peaches, grown in a sprayed orchard, fine fruit, free of any blemish.

Mrs. H. K. Beard exhibited a large collection of fruits and vegetables, canned and preserved with honey, an instructive and handsome exhibit.

Mr. P. G. Snyder exhibited a small number of queen breeding appliances.

F. HAHMAN,
PENN G. SNYDER,
H. K. BEARD,
Committee.

(Signed)

The report was adopted as read.

Demonstrations were given in the Shook Method by Prof. Surface, aided by Messrs. Shilling, P. G. Snyder and Hornor. Methods of treating angry bees were also demonstrated.

Queen-hunting contests claimed quite a little time and afforded much entertainment. Messrs. Ezra D. Kurtz and O. H. Smith each found a queen in two minutes and Mr. Fred C. Miller found his queen in two minutes and fifty-five seconds.

By motion of Mr. Klees, the meeting was adjourned.

A brief session of the Pennsylvania State Bee-Keepers' Association was held, Vice-President Hornor presiding, at the orchards of Mr. Henry C. Snavely, Cleona, Pa., at which the following resolution was adopted:

Resolved, That we thank Mr. Henry C. Snavely for his courtesy and liberality in welcoming us at his orchards and explaining at length his methods in securing most gratifying results in the production of fruits.

The meeting then adjourned.

Report of the

Seventh Annual Convention,

PENNSYLVANIA STATE BEE-KEEPERS' ASSOCIATION.

The 7th Annual Convention of the Pennsylvania State Bee-Keepers' Association was called to order at 10:20 A. M. Sept. 9, 1910, by Dr. W. E. Flowers, President of the Philadelphia Bee-Keepers' Association, in the lecture hall of the Philadelphia Commercial Museums, Philadelphia, Pa.

Dr. Flowers extended a very cordial welcome to the State Association in this the meeting place of the Philadelphia Association. In his welcome he paid tribute to Mr. A. I. Root, believing we should say good things of persons we appreciate, while they yet live. He spoke of the close unity of apiculture with religion and referred to circumstances incidental with the session of the National Bee-Keepers' Association in Philadelphia years ago.

Dr. Flowers cited as an important point for which we are working the elimination of swarming, an accomplishment he wishes to see approached while he yet lives, even if he may not see it perfected. He mentioned the free room in which the meeting was being held and the privilege of keeping an apiary on the grounds as commendable co-operation on the part of the museum's officials with the Bee-Keepers' Association. After stating that Mr. Selser was in charge of refreshments, to which bee-keepers and their friends were invited, Dr. Flowers turned the meeting over to the President of the Pennsylvania State Bee-Keepers' Association, Prof. H. A. Surface.

After a few remarks the President called on Mr. Wm. A. Selser for an opening prayer.

The roll was then called, 20 of the 131 members answering to their names.

The minutes of the Lebanon meeting were then read and approved, a motion by Mr. Selser extending special thanks to the Secretary-Treasurer for the care in their preparation, being seconded and carried.

Committees were then appointed as follows: Committee on Introduction, Dr. W. E. Flowers, chairman, Mr. Hahman, Dr. Wilson, and Mr. Selser; Committee on Resolutions, Messrs. Fox, Hornor and Dr. Flowers; Committee on Auditing, Messrs. Rambo, Snyder and Beard.

The report of the Secretary-Treasurer was then read as follows and adopted as read:

Secretary-Treasurer's Report, September 7, 1910.

Your Secretary-Treasurer begs to submit the following report: Since the last annual report there have been enrolled thirty new members, approximately the same number as were secured during each of the two preceding years. However, as the report of last year covered only ten months and the present report covers twelve months, it would

be well for the Association to consider means for strengthening our membership.

At the Lebanon Convention your Secretary-Treasurer was directed to have printed 5,000 copies of a circular approved at that time, and to send them to as many addresses from the list of Pennsylvania bee-keepers obtained through the co-operation of the Departments of Agriculture of Washington, D. C., and of Harrisburg, Pa. These were mailed to the bee-keepers listed from twenty-four counties on October 26 and 27, closely following the first government circulars mailed from Harrisburg on Oct. 21, the counties being: Adams, Beaver, Berks, Bucks, Chester, Dauphin, Delaware, Erie, Fulton, Indiana, Lackawanna, Lancaster, Lebanon, Mercer, Montgomery, Northampton, Philadelphia, Snyder, Sullivan, Susquehanna, Union, Venango, Westmoreland and York.

A copy of this circular was printed in the September, 1909, issue of the Pennsylvania Zoological Bulletin, reaching forty thousand addresses, the first copies being mailed October 28, 1909. The result of this effort to widen the field of usefulness gained six new members, with possibly nine more attributable to this effort.

Correspondence indicates that the passage of a bee law would have saved us the loss of one member, and if one, possibly several would have remained on our roll and others would have joined.

The present membership is one hundred twenty-eight. Forty-eight members of a year ago have allowed their membership to lapse. Three have resigned on account of lack of bees or on account of a change of occupation, and one, already mentioned, because the Legislature has provided no protective law. Our present method of limiting membership to the time for which dues are paid enables us to see our actual loss or gain in membership.

One honorary member has passed away, the only person on our records upon whom honorary membership has been bestowed (Hon. E. K. McConkey).

There are now in the possession of the Secretary-Treasurer 278 copies of the report of the second, third and fourth annual conventions. Only one has been sold during the past twelve months. A material reduction in the price of these might be advantageous, though very few inquiries have been received for them, possibly only two or three. It might be well for the Association to obtain aid from the Commonwealth, for the purpose of publishing our reports, through the appropriation customarily made to the Department of Agriculture for encouraging state-wide associations which are active in the agricultural fields of this State.

Occasional inquiries are made of the Secretary-Treasurer concerning the representation of the Association on the Farmers' Institute lecturing force. While this does not require the action of the Association, possibly we would do well to co-operate as an association with the Director of Farmers' Institutes in preparing the 1911-12 program.

The use of receipt cards in securing association rates is in growing favor and members may save themselves occasional delay in receiving goods at discount by sending their receipt card with each order, same to be returned with the bill.

Cash on hand Sept. 7, 1909,	$ 54.06	
Receipts from dues,	137.04	
Receipts from sale of reports,	.25	
Receipts from sale of postage,	1.92	
Interest on deposits,	.05	
Credit memo. No. 42549, A. I. Root Co., 10-1-09, Article *Gleanings*, p. 608-9,	2.00	
Total Receipts,		$195.32
9-15-09, Printing 5,000 circulars, C. G. Nissley,	$ 5.00	
9-15-22 5,000 1-cent stamped envelopes,	56.20	
290 2-cent stamped envelopes,	6.24	
200 1-cent stamped envelopes,	2.28	
Other postage,	1.02	
1 box typewriter paper,	.45	
Dues to National Association,	68.00	
Salary paid to Secretary-Treasurer,	50.00	
Total Expenditures,		$189.19
Balance on hand, 9-7-1910,		$ 6.13
9-7-10 Dues remaining unpaid to N. B. K. A.: Dougherty, Groff,	1.00	

Respectfully submitted,

A. F. SATTERTHWAIT, *Secretary-Treasurer.*

We, the auditors appointed to audit the books of the Pennnsylvania State Bee-Keepers' Association, report that they have performed that duty and found them in accord with the report as reported by the Secretary-Treasurer.

L. M. WEAVER,
PENN G. SNYDER,
H. K. BEARD,
Auditors.

The President lamented the depleted condition of the treasury and expressed hope that some change would be made to strengthen it in the future. He then delivered his annual address expressing gladness that it was his privilege to deliver the fifth out of six, and stating that God had blessed his life this year as never before. Bees, he said, had started well early, but the season has come to be the worst in his experience. The trouble was attributed to extremely wet weather during apple blossoming, followed by extreme dryness. These conditions seemed more than anything else, to have been responsible for the present season's lack of honey.

Comparing the production of queens to that of trees, he stated that with queens, as with trees, the best grown are those home-grown and acclimated.

Referring to past hostility of bee-keepers to dealers in bee-keepers' supplies, he commented favorably on the present harmony prevailing in the State Association.

The President modified his statement made at the Lebanon meeting concerning honey dew, saying that the best chemists cannot tell the difference between secretion and excretion, hence his expression, published in bee journals, is dependent on definition of secretion and excretion. He says we must concede, therefore, that honey dew is both a secretion and an excretion, and having had a year to learn, we now know.

For the good of the Association, he made the following recommendations:

1st. Annual meeting a week before the National Bee-Keepers' Association meeting.

2d. A spring or early summer meeting.

3d. A publication committee to publish facts concerning apiculture, in anticipation that an increased public education would make an increased interest.

4th. The legislative committee should district the State and write legislators.

5th. The salary of the Secretary-Treasurer should be reduced or wiped out altogether, as such officer should do the work for the love of bee-keeping.

6th. The Asssociation should agree upon action to be taken before the Legislature. Two years ago one man held up the action of the Association till too late.

7th. The Association members should write personal letters to the Experiment Station, urging that the station carry apicultural experiments.

In terminating his address, the President urged that colonies be kept strong, that honey be unloaded locally if possible, and that the Association observe the harmony exemplified in the hive. He said there are plenty of bee-keepers, but we want better bee-keepers, and would encourage the reading of bee journals and the keeping abreast of the times.

Mr. Hahman then made announcements concerning the care of visitors in relation to meals and lodging, and asked that those wishing accommodation make themselves known.

The President announced a change in the program, Mr. Selser and Dr. Phillips exchanging their places.

Mr. Hahman moved that the election be postponed till the following morning. Mr. P. G. Snyder seconded the motion. Mr. Selser amended the motion to have the election in the afternoon. The amendment was seconded and carried.

In anticipation of adjournment, Dr. Phillips suggested that the afternoon session be devoted exclusively to bee diseases. A vote was taken favoring convening at 1:30 P. M.

Mr. Selser announced that the Committee on Refreshments had made elaborate preparation for the reception of the State Association to-night and that they desired the feeling of good fellowship to prevail as the Association terminated its convention. Mr. Steele, chairman of the Committee on Refreshments, announced that preparation would be made for 25 or more.

The convention then adjourned to meet at 1:30 P. M.

Afternoon Session.

President Surface called the meeting to order.

The first topic was "Experiences of a Beginner, Poetry and Prose," by Rev. Blackwell Green, Norwood, Pa.

After some pleasant remarks he stated that two years ago he had been persuaded to get some bees. After he got them, he was puzzled to know how to get them out. After a few got out, he was stung. That was a poetic movement when he was first stung. After the bees were

released, the honey flow began and some of the honey was black and greenish. The Sunday-school children enjoyed them. To them apiculture was poetic. When next he went to the bees he put on two supers and in mid July went to York on a vacation. The hives were full when he returned. To-morrow we will see the meadows covered with the golden color of coreopsis. The honey of coreopsis is so thick you can put it in a jar and turn it upside down and it will not run out. He was so pleased that he bought five colonies the following winter, bees being of mixed colors. He was stung unconscious and believed he received his share. They were not in good winter condition, yet all came through strong and healthy. He fed with syrup. The bees insisted on entering his house and other houses. He put on a queen excluder and left it on till the middle of May. The queen had laid eggs in drone cells, and the drones could not get out. They died and made a stench. No one should allow himself to get caught that way. He likened his knowledge of bees at that time to the knowledge of the Bible of the woman who wished her children named Ananias, Pontius Pilate and Judas Iscariot.

God seems to have given bees better brains than mankind. When provisions were lacking this year, workers killed drones. He contrasted the poetic trait of the human kind, where the less capable and those having least chance most increase their kind and deplete their resources, with the bees, where the colony having the least stores suspend reproduction of their kind and eliminate all idlers. He further contrasted the orderliness of the colony of 50,000 bees with the population of Philadelphia. With ventilation at only one door, with all ingress and egress at this one door, with all food and all dregs passing through this same door, could the people do as the bees do? Following this question, he asked how it was the bees discovered that one of a colony might lay all the eggs and allow others to develop for other work. Fifty or sixty years ago Prof. Nitcher proposed a delicate policy, proposing to kill weaklings and have doctors determine who should marry and multiply. There is no cruelty on the face of the earth equivalent to that of bees. Yet they have peace. This cannot be said of the human domicil. If one bee stings another, both die.

Following his address, Dr. Green was asked if he knew that he did not have foul food. He answered that he knew the disease, did not have it and believed none of his neighbors had it.

Another member said he knew the disease had a smell, but never knew of dead bees stinking. Dr. Green stated that there was no odor after the dead drones were removed.

Mr. Snyder asked Dr. Green if he had a queen in, and was answered in the affirmative. Mr. Surface said he respected the absence of queens.

Address on Progress of Foul Brood Legislation.

Wm. A. Selser, Phila., Pa.

The foul brood bills already passed have proven that the most successful way to secure a foul brood law on the statute books of the State is through the Department of Agriculture. The procedure in states like New Jersey, where they have an entomologist appointed with authority to reject or destroy insects that are injurious to trees

and other plant life, and an enactment to empower him to work along the same lines in eradicating foul brood, meets with very little opposition. As the Board of Agriculture is made up of county boards of agriculture, it is important that the bee-keepers try to get a representative on the county board, who, in many cases, can be appointed as delegate from the county to the State Board, thus giving them an important standing and through this the bee-keepers can have a representative on the State Board such as the Horticultural Society has. Along these lines the Legislation Board intends to work. Delaware State Board already has, without any direct law, worked the investigation of foul brood in the State through the same channels. A bill could easily be passed along these lines, but up to the present time there is no foul brood in this State that has developed as yet. Several cases are under suspicion and have been investigated by Secretary Webb of that State.

The following is the condensed matter which would make a model foul brood law.

Article 1. Unlawful to keep diseased bees after notice as herein given. Penalty $25.00.

Article 2. Queen-rearing yards to be inspected twice a year, and a certificate issued by the State Entomologist. $50.00 fine for selling queens without this certificate.

Article 3. Duty of entomologist or assistant to state in certificate issued, how long it remains in effect.

Article 4. Power of entomologist to enter yard of bee-keeper and where any infection is discovered method of treatment is given. Failure to follow same entails a penalty of $25.00.

Article 5. No bee-keeper can sell, expose, or give any diseased bees or larvæ until same has been treated and certificate granted. $50.00 fine.

Article 6. If ordered to destroy, bee-keeper can appeal in three days to a committee of appeal appointed by the Board of Agriculture, who have the power to reverse the order of the State inspector.

Article 7. Inspector has legal power to finally destroy an apiary.

Article 8. Two thousand dollars appropriated to the State Board of Agriculture; no payments to be made until amount shall have been included in the annual appropriation.

Mr. Snyder then stated that he had had a life experience in the same neighborhood and attributed it to insufficient feeding.

Mr. W. A. Selser then offered remarks on the Foul Brood Legislation in Pennsylvania.

Mr. Selser stated he had written Secretary N. B. Critchfield for a place before the Pennsylvania Board of Agriculture as a representative and had his response.

The President interrupted, stating that a member of our association is the State Apiculturist to the Board of Agriculture, and copies of the reports could be had for the asking.

Mr. Selser then continued his remarks, mentioning communications from Maryland and from Delaware. The question of law is a question of correspondence. He said he had a number of apiaries in Delaware. They have no known foul brood. Mr. Webb has sent four cases of suspected foul brood to Mr. Gilfillin. Without a law on the Delaware statute books, they are fulfilling the functions of a law. In the New

Jersey law, the penalty is such that the law can quickly be enforced. While Dr. Phillips had some responsibility in framing the Ohio law, he will concede it might be better. In the New Jersey law there are nine sections. Certificates are issued and specifically state how long the apiary may operate without further inspection.

Mr. Fox asked Mr. Selser what law it is we have in Pennsylvania, which might properly be amended to help apiculture.

Prof. Surface said he was assured from last session the way is opening for a law, and that there is no one greater need than a present law to be amended to promote apiculture.

Mr. Selser asked if there was not a law for the State Zoologist which might not be amended.

Prof. Surface answered that he is working under an inspection law for trees, authorizing destruction, and said the Secretary of Agriculture could add this duty to the duties of Zoologist.

Dr. Phillips said it sounded good to him to hear legislation talked about that way. Michigan has an independent officer who has done this well. Elsewhere, he says, he has put up to present officers the need to work. In Wisconsin they have one of the best men but he has no office. He cannot control it single-handed. In Indiana the State Inspector never opened a hive of bees till he was put in office. He chose the best bee-keeper in the State as deputy and had him drill his orchard inspectors, so all are good foul brood inspectors. That is by far the best managed. In Ohio, 15 counties have been thoroughly canvassed and cleaned up. Dr. Phillips showed a map of Pennsylvania with counties marked to illustrate the distribution of the American (in 18 counties) and of the European foul brood (in 37 counties). He believes the statement was made in the Jarrettown meeting of Bee-Keepers, that there was no foul brood in Pennsylvania. Thus far, practically everything has been done by the office of State Zoologist and of U. S. Bureau of Entomology. Dr. Phillips asked the President if the State Association has spent as much as $25.00 to promote apiculture, then asserted that we would have to put our hands down into our pockets to promote the cause else the Bureau of Entomology will not continue to help.

Mr. Selser stated he would recommend an amendment of a bill already in force, and letters should be sent to Secretary Critchfield when time is ripe, as well as to legislators. We need a strong hold in Harrisburg and in Trenton to push matters.

Prof. Surface said the Association allowed the whole work to rest on him and he called upon Dr. Phillips, Mr. Selser and Prof. Klinger, each of whom paid his own way, so far as he knew. It is not right to entrust an important public work to a public officer unless we have confidence. He said he had 30 men inspecting, who are efficient. Any found inefficient are dismissed when fault can be proven.

Mr. Selser mentioned the fact that there is not all-the-year-round need for a bee inspector. When the honey flow slacks off is the time to inspect for foul brood.

Prof. Surface suggested that if we do nothing else than hit upon an effectual plan for bee legislation, we will have spent the two days well.

Mr. H. P. Faucett, of Brandywine Summit, Pa., then presented his paper, entitled "Success in Honey Production."

Success in Honey Production.

H. P. Faucett, Brandywine Summit, Pa.

To be successful in honey production one should have a strong colony of bees with a vigorous queen. To have this it is necessary to begin several months before the honey season commences.

About August 1st, examine all the colonies, discard all queens over one year old and replace them with laying queens, or a queen cell from one of your best colonies, the bees of which have good markings and are good honey gatherers. Drones should be kept from colonies that show good marking and honey qualities, as there will be very few drones at this time of the year.

About August 15th, commence to feed all colonies a little thin syrup, if the combs are not well filled with honey; feed enough to supply the brood rearing, but not enough to cramp the queen for room. This gives strong colonies to gather the fall honey crop. As soon as the fall honey commences to come in, discontinue feeding.

If the colonies have gathered enough fall honey for wintering, they will need no further attention until packed for winter, unless they have honey dew, which should be removed. If they have not gathered enough honey, feed them syrup composed of 2 parts sugar, 1 part water and one part liquid honey. This will not take the vitality of the young bees as a thinner syrup would, fed earlier, and should be fed after nearly all the brood rearing has ceased.

To prepare colonies for winter, *do not divide* the winter nest. Many bees will cling to these combs if divided, only to die with starvation. I use a Hill device on top of the brood frames; over this a piece of coffee bag, and on top of this I place a case filled with loose cork sawdust. I find a deep telescope cover, with an air space over the cork gives ample protection during the winter in this locality. The entrance should be closed to ⅜ x 5 inches.

If there is a fine snow on the ground and it gets warm enough to draw the bees out, shade the entrance with a board.

March is the most critical time during the winter for bees. All colonies should be examined. If the bees are nearing the back part of the comb and it is warm enough, a comb of honey should be placed in the center of the cluster; but should the weather be too cold, place sections of honey face downward over the cluster, with a thin board and bee space over the other side of the section. Later in March examine all colonies and if any are found queenless, replace them with queens from the south.

In April see that all colonies are well supplied with honey, or if necessary to feed, give them combs filled with syrup or honey. If any of the colonies are weak, put the bees on one side of the hive, and as soon as the brood commences to hatch, shake a few young bees from strong colonies at the entrance, and they will run in and be accepted. Later you may exchange a frame of eggs for a frame of hatching brood. The piece of coffee sack should be replaced with enamel cloth over the Hill device or a bee escape board; my preference is the enamel cloth, as it confines the heat to a smaller space.

When the bees commence to gather honey from the fruit bloom, see that there is ample space for the queen to lay in; if not, remove frames filled with honey and give empty combs in place of them,

leaving enough honey to last the bees until locust and poplar bloom; or, if colonies get too strong and it is warm, give them a case of empty combs over a perforated zinc honey board, but do not put larva or eggs with them, as this will make the bees more apt to build queen cells and swarm.

If the colonies swarm in fruit bloom and you want to increase, they might be built up with a couple frames of brood, this will strengthen them so they will be ready to work in the sections when the clover comes. When the locust and poplar blossoms come all strong colonies should be given a case of sections with a few bait combs in the center, if running for comb honey, or a body of combs if for extracted honey. This should be well covered with cork sawdust, old carpet or some covering that would retain the heat, thus placing the telescope cover over all. If it is warm enough all colonies should have 7-8 inch entrance the entire width of the hive.

If the bees swarm at this time it weakens the colonies for honey production and should be prevented, first—by cutting out all queen cells; but if they persist in swarming and building queen cells, hive the swarm in a new brood chamber filled with combs, on the old stand. If you have no combs built out, give them a frame of brood, the remainder of the frames filled with foundation. Over this place the surplus arrangements. The sections or extracting frames should be covered with a piece of enamel cloth, leaving a small space at one corner opposite the lower entrance, cover this with a perforated zinc honey board. Over this place the old brood chamber.

In a few days you can destroy all queen cells started, giving them a queen cell from one of your best colonies. As soon as this is hatched, if there are any queen cells, they will be destroyed.

In a few days make an opening in the hive or perforated zinc board opposite to the lower entrance. The queen will be fertilized and laying. In fourteen days the brood chamber should be removed. If the queen in the lower brood chamber needs replacing, she can be removed and the young one allowed to go below, or if the idea is to increase, move the old brood chamber and young queen to a new location, with enough young bees to care for the brood. The lower brood chamber will be found filled with brood, with very little honey in the old one.

The advantage of hiving the swarms as above stated is, first—it satisfies the desire of the bees to swarm. Second—there is no loss of brood, as enough bees will go above to care for it. Third—the colony is growing stronger all the time. The lower brood chamber will be filled solid with brood, causing all the honey to be placed in the surplus arrangements.

When the bees are in need of more room for surplus honey, if running for comb honey, place a second case above the other, as I have found by several years' experience, bees will fill the upper case as soon as if it were placed between the full case and the brood chamber, and should honey season close suddenly, there will be fewer unfinished sections. If running for extracted honey, place the empty brood combs next the brood chamber.

Prof. Surface asked about the newspaper, and Mr. Faucett stated it was enameled oil cloth, smooth side down. The queen hardly knows the brood is above. Leave a corner open for the workers to go up and down to take care of brood. The emerging bees will come down.

He takes the oilcloth off only when he takes the upper chamber off.

Prof. Surface commended Mr. Faucett's paper, saying if it were in print we would study it. We are learning that we must keep our records and look after queen cells, selecting by record, as poultry keepers and butter producers, the very best. We must select, first—queens, then drones and have honey producers.

Mr. Faucett said that there are not so many swarms go from brood developed from colonies with non-swarming record as from colonies which do not have such a record.

Mr. Hornor asked if we do not secure what we are after in selecting our brood from good honey producers. Prof. Surface answered that we do to a limited extent.

Mr. Hornor, referring to Prof. Surface's suggestion this morning, that queens should be selected near home, said he would go further. The best queens for a bee-keeper are his own. A small percentage is needed for new blood.

Mr. Faucett said he would always use full sheet foundation. Mr. Snyder reported that one colony of his stored 200 pounds of black honey—eight frames of brood. He made five shakes with that colony this year and it is now in the Fair Grounds. He cannot make another do anywhere near so well. That colony, with eight frames of brood, sent away no swarm.

Mr. Selser then read the following paper on "Wax Rendering," by H. H. Root, Medina, Ohio.

Wax Rendering.

By H. H. Root, Medina, Ohio.

By way of introduction to this paper, Mr. Selser said Mr. Root wanted a way to test wax and he reported specific gravity as the best way he knew. Mr. Root took hold and got to the hundredth point correct. This is the plan best for small wax rendering—not changing advices on large production of wax.

Ladies and Gentlemen of the Pennsylvania Bee-Keepers' Association:

Your secretary has asked for a paper on the rendering of beeswax, including especially the modus operandi up to date, that can be recommended for the average small bee keeper, who generally neglects this important work. This subject is an old one yet always new, and just now especially important, since, by frequent rendering of combs, brood diseases can be eradicated from an apiary. Foul brood has been spreading at such an alarming rate that only by the greatest care can this foe be conquered. When farmers, or others not inclined to take pains to prevent robbing, continue to exist, frequent rendering of old combs is the very best way to keep an apiary free from disease.

For the last ten years a great deal of my time has been spent rendering old combs. The problem first looked very easy, but I soon found that there are a great many things to take into consideration, if the combs were to be rendered so that the refuse would be practically free from wax, by a method that would not consume entirely too much time, and with an outfit, the cost of which would not be prohibitive. Let me say right here that there will probably never be a plan for rendering wax that will be free from objectionable features. Time

after time as I have dropped a dipper back into the boiling comb and felt the sting of the hot drops of wax on my face, or at a time when a gallon or so of wax has slopped over onto the floor or onto my clothes, I have seated myself on a sticky box and, while softly rubbing my hands that were blistered from straining hard at the handle of the screw, allowed myself to dream of an ideal wax-extracting outfit. It always had a most inviting look, for a gasoline engine would be chugging away nearby, doing all the hard work while all I had to do was to scoop up the combs with a shovel from a big bin into the large hopper at the top of the machine and then at intervals put an empty box in place of the full one under the trough from which was issuing the refuse entirely dry and free from wax. At the other end of the machine there would be a pipe sticking out from which nice yellow wax in a clear stream was running into a well soaped can beneath. With this machine there never was any wax on the floor, no steam in the room, no danger of burning up the building and no trouble of any kind; but the probabilities are that this is one of the dreams that will never come true, and my ideal machine is, after all, only a castel in the air.

To wake up again and return to the real work, for wax-rendering means real work, we must recall a few facts.

No. 1. Combs should not be melted in a wash boiler used for laundry purposes, nor on a cookstove, unless the owner of boiler and stove is a bachelor.

No. 2. The ideal place for rendering wax is in a shed where a little wax spilled on the floor will not mean trouble in the family.

No. 3. Wax cannot be economically rendered without some apparatus besides an iron kettle and two or three pails.

No. 4. Look out for the man who says he gets all of the wax out of his old combs. If he thinks so merely because his refuse looks dry he is more than likely wasting from ten to fifteen per cent. of good wax.

No. 5. Do not try to render wax with an outfit better adapted for making ice cream.

Although this paper is to deal especially with an outfit which a small bee-keeper can use with good results, it may be well to mention briefly a few of the many plans that have been tried and found wanting.

For instance, at one time the idea of running bags of hot combs through rolls arranged like a wringer, partially submerged in boiling water, seemed very promising. The plan was tried under the most favorable conditions possible, but found to be an absolute failure. Hot wax is a pretty good lubricant and in spite of hereulean efforts the bags would not feed through the rolls or else the contents would remain behind in the part of the bag not yet passed through the rolls, so that the continued pressure quickly burst the cloth.

At another time a centrifugal wax-extractor was suggested, the idea being to dip the melted comb into large round perforated metal pail which could be rotated at a high rate of speed in a large can filled with steam. We have found that such an extractor quickly removed about eighty per cent. of the wax and then left the remainder in the refuse which was clinging to the sides of the pail so tightly that it took a great deal of time to scrape it off, boil it up again in

water and repeat the process. We finally concluded that the plan was a very wasteful one and it was abandoned.

Another system of wax-rendering on a very extensive scale was tried quite recently. A quantity of combs were thrown into a large iron box, a screen put over the top and a cover fitted on and made water tight, from which a pipe led to a tall tank of small diameter standing nearby. A pipe from the bottom of this tank to the bottom of the iron box completed the outfit. The whole machine was filled with water, which was boiled by means of heat applied to the bottom of the iron box. The boiling at this part caused the water to circulate rapidly, the hot water rising through the combs and passing over into the top of the tall tank, the cooler water from the bottom of this tank meanwhile returning to the bottom of the iron box and the process of circulation continuing. The idea was, that the constant flowing of boiling water through the combs would thoroughly wash them of the wax, which would pass up through the pipe into the tall tank which would act as a separator, as the wax would not go to the bottom of this tank and therefore water only would pass through into the comb box again. The plan failed after a long series of experiments. The trouble was that, if a screen fine enough to prevent the refuse from passing over into the separating tank, were used, the circulation would be so sluggish as to make the process consume entirely too much time. Furthermore, the water had a way of bubbling up through one corner or perhaps the middle of the screen, pushing the refuse back to the sides out of its way, so that the washing process was not by any means thorough.

A great many very practical and economical plans have been described in the bee journals, but it is not within the scope of this paper to mention all of them. I will take up only one plan, which, after all my experimenting, seems the best adapted to the wants of the average bee-keeper. The plan is not original with me, but contains several features that I have found to be necessary from my own work. Such men as Orel L. Hershiser, C. A. Hatch, W. J. Manly, H. G. Sibbald, F. A. Salisbury, Leslie Burr, etc., many of whom I have seen personally, have contributed valuable ideas on the subject.

The plan, in brief, embodies screw pressure on combs under hot water in a shallow can which need not be over a fire. For the average bee-keeper a can not over seven or eight inches deep is sufficient. For the larger bee-keeper, say one who produces more than 300 pounds of wax a year, we regard a press on the Hershiser principle as the best. The Hershiser press has a can deep enough to hold several leayers of combs, or, in other words, several "cheeses," and such a press should be so constructed that it may be set over a fire. As this paper is to be primarily for small producers, we will confine the description, therefore, to the shallower can.

The outfit needed should include a large can, say a two-frame honey extractor can with the reel removed, a press, which will be more fully mentioned later, two washboilers of fairly good size, an old stove with a heating surface large enough for two boilers at a time, a large dipper, one small galvanized iron washtub (or, instead of this, a small washboiler may be used), and several pieces of heavy burlap.

The press may be constructed of materials found about the average farm, if desired, and the can may be made by a local tinsmith. A

round can is a little more convenient for rendering wax, but the inside fixtures are harder to make, and if the press is to be made at home, therefore, the can should be 16 or 17 inches square and about 8 inches high. No gates or openings at the bottom are necessary. There should be a heavy wire or band around the top to make it rigid. A strong box should be made of 7-8 inch material that will just fit inside this square can. The bottom of the box should be made of 1-2 inch strips spaced about half an inch apart. Around the inside of this box, 1-2 inch strips should be nailed vertically, also about half an inch apart. This completes the inside fixtures of the can with the exception of the follower, that is, the board upon which the bottom of the screw rests. This should be constructed of either oak or maple. Seven-eighth inch boards may be used, the two separate thicknesses being nailed together with the grain running crosswise, so as to make a follower that will not crack or split. On the under side of the follower 1-2 inch strips should be nailed, properly spaced like the others. A heavy platform should be constructed on which the can may stand and to which the framework may be bolted, that supports the screw. A small jackscrew, used for lifting buildings, etc., is ideal for the purpose. It should stand on the floor in an upright position, the top pushing against a 4 x 4 cross-arm rigidly attached to the platform under the can with 2 x 4's or with long bolts. The construction must be very rigid so that the frame work above cannot be pushed either side by the screw. This completes the press. If a jackscrew cannot be used a carpenter's bench-vise screw may be used, but in that case a cast iron attachment is really necessary for the bottom of the screw, to make a large flat surface to rest on the follower. If this is not done, in spite of all precaution, the follower will persist in going down unevenly, that is the melted comb underneath it cannot always be evenly placed and one side of the follower is sure to go down lower than the other and this means that the larger part of the comb does not get good pressure. Possibly a large hard wood block could be used, with a hole bored into it, into which the screw could extend, but we have never been able to get good results with anything except an iron end for the screw. This is the reason that a jackscrew is so well adapted for the purpose, for the large base prevents the follower from going down sideways, better than anything else except a cast iron spider-shaped attachment for the bottom of a screw that is especially built for the purpose. The parts of the press must be rigid, for if the pressure is uneven, or if the screw keeps slipping and giving trouble, the whole outfit will prove wasteful of wax and will turn out to be only a failure.

Arrange the press on a box high enough so that the small washtub or boiler can be placed under it. It is well to have the box screwed to the floor and then hinge the front of the press platform to the front of the box so that while the pressure is still applied to the combs, the whole press can be tipped up on edge and the wax and water poured off. Have the empty honey-extractor can standing on a box high enough so that a common water pail may be placed under the gate. The press should be as near to the stove as possible.

To begin work pour several pails of water into one of the wash-boilers and set it on the stove to heat. The boiler should be nearly half full of water. When this is boiling throw the old combs into

it and keep stirring them under so that they will be well broken up and thoroughly melted. Almost half a barrel of old comb can be put into one boiler if the stirring is kept up. It is well to put in too little comb, however, rather than too much. Keep up the stirring until the whole mass is thoroughly heated through, so that it has reached the consistency of mush, there being no lumps or unmelted portions. The half fill the other boiler with water and put it on the stove, so that it will be heating ready for the next batch. Next spread a piece of stout burlap 36 to 40 inches square, over the shallow can under the press. This can may be slid forward on the platform so that the frame work above it will not be in the way. Dip from half a gallon to one gallon of melted comb and water into this burlap. Be sure to dip plenty of water for good results cannot be obtained with comb that is too dry. Fold over the burlap carefully as you would fold paper in tying up a package. Be careful to have no rolls or bunches of burlap as this would interfere. If experience shows that the burlap tends to unfold, use large bright wire nails for pinning it, but usually this is not necessary. Place the square follower on top of the comb with the 1-2 inch strips on the under side running toward the front. Place the jack screw in position exactly in the center and slide the can under the cross-piece and apply the pressure slowly. There should be enough water dipped in with the combs so that the follower, when it is pretty well down, is entirely submerged. Usually it is well to add much more hot water than is dipped in with the combs. If the pressure is applied slowly and not too hard at a time, the follower can be pushed down so that the "cheese" is not over 3-4 of an inch thick. Release the pressure and lift the screw from the follower for about a minute until the water has had a chance to saturate the refuse again. Then apply the pressure as before. Repeat this, making three pressings in all. If the room is very hot the wax that rises to the top of the water will not chill, but if it does chill, two boards should be laid across the top of the can with notches cut out for the jackscrew, so that the cold air will be kept away from the wax. After the third pressing and while the pressure is still applied, remove the two boards over the top of the can and tip up the press platform on its hinges, so that all the water and wax may run into the small tub beneath. Hold the press in this position until all the liquid is drained out. Then tip it back, release the pressure, remove the follower, shake out the refuse into an empty box or large basket and again fill with melted comb, working rapidly so that the press may not cool off. Then when the pressure is being applied again to a new lot, empty the wax and water in the washtub into the extractor-can and cover up the can with an old carpet or some sacks.

The work now may be continued without interruption. By the time the water in the second boiler is boiling the comb may be thrown in and stirred as before. when one boiler is empty more hot water may be drawn from the bottom of the extractor-can through the gate, care being used to prevent drawing down the contents of the can enough so that the wax runs out at the gate. Enough water should be used to start with so that there may never be less than a foot or so of liquid in the extractor-can. There is then no danger of drawing down the wax. The water may be used over and over again all day

long, for though it becomes thick and sticky we have found that it does not discolor even the brightest yellow wax.

At the end of the day or when the work is over, the water may be drawn off from the large can until the wax begins to come and then the wax drawn into suitable, well-soaped pails or moulds for the purpose.

Copper boilers that are not coated with tin on the inside ought not to be used for melting wax, as copper combined with heat has a tendency to turn the wax to a greenish black color. Galvanized iron does no harm if no heat is applied, but tin or black iron is a little better. Great heat applied to a small quantity of wax in almost any metal vessel will discolor, but this discoloration is so slight as to be practically unnoticed if tin is used. Wax rendered by the process described above is usually of a very nice color, although, of course, not as light by any means as wax made from cappings. However, it is rarely best to attempt to purify or refine wax by the use of acids, for without proper facilities, the wax is more likely to be injured than benefited. Scrapings and all refuse wax, etc., may be run through a solar wax-extractor and refined in this way.

Prof. Surface asked how acid affects wax. Mr. Selser answered that wax is not so salable when acid is used to purify it. His method was to use 100 to 150 pounds of beeswax and enough water to fill up a 75 gallon tank. After treating with acid allow it to cool very slowly. Thus there is merely a trace of acid by litmus test.

Mr. Hornor said that a very small amount of acid used in refining wax where steam is used brings good results. He cautions beginners using burlap in rendering wax to soak the burlap thoroughly with very hot water. Cones and boilers must not only be heated but scalded.

Mr. Fox said that the Root wax-rendering plan is best known. If the follower were covered with metal before half-inch mesh is applied, he believes, the difference between metal and wood as absorber of heat, makes a big improvement. Burlap often breaks. The greatest pressure brings the brightest wax.

Mr. Hornor asked if Mr. Fox scalded the block (follower). Mr. Fox answered that he does not always. He finds it pays to pull out the plug after the wax is run off.

Mr. Hornor added that if one scalds out a second time after draining off, enough more wax will be gotten to more than pay for the trouble.

Prof. Surface asked if the solar extractor could be depended upon for extracting old combs. Mr. Hornor said he would use it only for new combs and caps. Mr. Snyder added that it is only good for wax never used for brood. Mr. Fox said it would pay to throw wax into a barrel and hold over for other plan.

Mr. Snyder asked if we would have his demonstration and exhibits indoors or outside. He said he could bring in his paraphernalia.

Mr. Selser renewed the invitation to all in attendance to come in in the evening, bringing friends and loved ones, saying two hundred were expected and it was hoped enough would come in to make the effort worth while.

Mr. Fox said, before leaving the subject of wax rendering, take

the particles of wax from base of cheese, put wax on bottom of hot stove or on tin plate and you will save some wax.

Mr. Penn G. Snyder gave a demonstration and exhibits of queen rearing, assisted by Messrs. Wm. A. Shuff and Geo. M. Steele. He said to shake into a box, having comb of honey and comb of pollen. Use a frame holding sixteen cells, make up queen cells in these holes and put in a larva not over 24 hours old. Graft one larva into each cell. Three-fourths of the cells ought to be accepted. Take one or two bars, place in frame in hive made queenless and broodless. Shift bottom body to another colony and top body on bottom. Put in a form to prevent cells from being built all the way down. In about sixteen days the cells produce queens for queenless hives or for hives with queen excluders. Then, as the virgin queen is accepted, in ten days she should lay fertile eggs. A test may be made sixteen days later.

A member asked Mr. Snyder if he put in royal jelly. Mr. Snyder answered in the negative, saying the grafts should be placed in dry cells. There should be three combs—one honey, one water, one queen cells. Grafting should be done in a room having a temperature not less than 90 degrees.

Mr. Snyder was asked which was the quicker, a colony taking care of brood or a colony treated by this method. He answered that in a colony with brood a queen may be produced in six days, but by the other method you can select your queen.

Mr. Wise asked if that was not very far from nature. Mr. Snyder assented it might be but that was immaterial to him as he gets results. A member stated he fed his bees on granulated sugar when developing queens. Another asked if the result would be good where all queen and queen cells were taken from a hive and an egg grafted in. Messrs. Snyder and Fox both reported satisfactory results with this method.

Mr. Wise said honey production is the quality we are after in queen selection.

Mr. Snyder reported that a party with a lot of purchased queens had best results with two golden queens, one by Mr. Pratt and one by himself.

A member expressed an opinion that it is not proven the queens from cells of colonies about to swarm are better than other queens.

Mr. Snyder said he did not think a swarm cell is nearly so good as they make the artificial cells. He regards the food as of vital importance.

Mr. Hornor. Mr. Snyder is on the right track. He gains, too, by having heat.

Mr. Snyder. The cells should not be jarred at all, nor tilted. When grafting a cell, have the sun right down to the bottom of the cell. Even then one has trouble seeing whether he has it or not. The larva floats in the milk.

Mr. Hornor said he knew this subject was taking a lot of time, but he would call on Mr. Baldwin who has put out a lot of good queens.

Mr. Baldwin said royal jelly is regarded as royal jelly, but it varies. The quality is just as valuable as quantity, and quality may depend on the age of the producing bees—the younger the better.

Mr. Faucett ased if queens from swarming colonies likely to make

swarming colonies, developing the traits. He has thought so in his own experience.

Mr. Baldwin asserts that this is unquestionably the case.

Mr. Steele regards shaking at 11 a. m. with good flow the best time to shake.

Mr. Snyder says the old bees are supposed to avoid storing honey.

Mr. Steele says the feeding of queen producing colonies is of vital importance. Feed each morning and do not feed too much. They might take the Alexander feeder filled three times, but that would be too much.

Mr. Horner said he worked off a ton of honey dew honey this summer.

Mr. Steele worked his off early in the spring. He lost two colonies and would not again take the risk.

The president suggested that election be given next consideration.

Mr. Hahman made announcement about the trolley excursion planned for the next day, the trip to be through the lowlands along the Delaware River, south of Philadelphia, to view the acres of fall flowers which bloom at this time, producing the fall honey crop for which this section is renowned. Special car will leave at 2.30 p. m. sharp, at Broad and Moyamensing Avenue. The fare will be 36 cents, round trip.

It was moved that election be by closed session. The motion was seconded and carried.

Prof. Surface was nominated for President; Mr. H. K. Beard for 1st Vice President; Mr. H. Hornor for 2nd Vice President, Geo. H. Rea for 3rd Vice President.

There was a general discussion as to salary of Secretary-Treasurer. It was moved that salary be eliminated, but that his railroad and hotel expenses be paid. It was seconded and carried.

Prof. H. C. Klinger was nominated for Secretary-Treasurer. The ballot of election was cast by the 1st Vice President, Mr. H. K. Beard.

Mr. Selser presented a resolution, as follows:

Resolved, That we appreciate the untiring efforts of our retiring Secretary-Treasurer, Prof. Satterthwait, and express deep regret of our loss of his services in the future.

The resolution was seconded and carried.

Adjournment was made to 8 p. m.

EVENING SESSION.

The meeting was called to order by the President.

Prof. Wilson, of the Commercial Museums, addressed the bee-keepers. He welcomed them to the institution, and spoke of its work in collecting specimens of agricultural, mineral and manufactured products, classifying them and sending them to public schools for the benefit of education. Fifteen hundred collections were already sent to High schools. Lectures, lanterns and slides were also furnished for use free to public school officials and teachers. The address was illustrated by a stereopticon and was greatly appreciated.

This was followed by a paper on "The Value of the Honey Bee to the Farmer," by H. K. Beard, of Manheim.

Agriculture is the foundation on which is built all other occupations.

Bee-keeping and farming to a very great extent depend on each other, for many crops could not be grown without the help of the honey bee. The bee is the agent of pollination in our fruits and plants. This is especially noticeable in the apple and the cherry. An early crop of red clover seed is not profitable because of the scarcity of bumble-bees to fertilize the blossoms, while a second crop later in the season is more so because the bumble-bees are then more numerous. One of the laws of nature is that the crossing of races produces offspring with greater vigor and endurance. Fruits succeed better when the pollen which fertilizes the pistil comes from some other blossom. Insects are instructed with the mission of transporting this pollen from one blossom to another, while gathering it also for their own use. Experiments have been made with white and alsike clovers by covering the blossoms. The uncovered heads were full of seeds while the covered ones were entirely seedless. Doolittle, of New York, says, in the season of 1893 the buckwheat blossoms secreted very little nectar and consequently was not visited much by bees. The result was that buckwheat grain was sold for 75 cts. per bushel, while wheat was selling at only 62 cts. per bushel. That it brought nearly one-fourth more than common wheat was due to the fact that many of the blossoms were not fertilized by the bees and consequently the crop was a failure.

E. G. Baldwin, of DeLand, Florida, then gave an illustrated lecture on "Bee-Keeping in Florida."

Bee-Keeping in Florida.

By E. G. Baldwin, DeLand, Florida.

And Florida is pre-eminently a land that appeals to the imagination. It is the least known of all the States. Most persons have a faint geographical recollection of St. Augustine, the "oldest city in the U. S.," and of the Spaniard, Ponce de Leon, who discovered the land; but they are not quite sure whether he discovered the city itself or only the spot where the city was to be!

Florida is the youngest State in the Union. Do not misunderstand me. I do not mean in statehood; but geologically speaking it is the youngest of all. The records clearly prove it. Her soil was formed many eras after the land that constitutes the sister States to the north.

Florida is the most unique State. It is almost entirely peninsular, and the only State that is so. With 1200 miles of sea coast, it stands alone in having a semi-tropical climate in all its length and breadth.

Map No. 1.

If some giant surveyor were to plant one point of his compasses at Fernandina, Fla., in N.E. corner, he would have to swing the other point 250 miles to the westward to reach the western line; and then, if he should widen them to an arc of 400 miles he could just reach Key West on the southern coast. To be sure there is but a narrow strip of the State on the north that reaches the 250 miles to the west, but Florida has, in latitude and longitude, an extent of 250 by 400 miles. Wide geographical extent means wide range of plant and animal life. Generally speaking, the northern half is the land of the pine, and the southern, the land of the palm.

Now just a few things that Florida is not:

(1). It is not a land of scorching summer heat. The maximum temperature in summer seldom rises above 94 degrees; the average summer temperature is 82 degrees; the average temperature all the year is 71 degrees. Sunstroke is unknown. For, while the peninsula reaches down almost to the Tropic of Cancer, between the blue waters of the Gulf and the restless waves of the Atlantic, it lies in the path of the Trade Winds, and delightful breeze in summer is almost as constant as the sunshine in winter.

(2). It is not a land of poisonous reptiles and deadly creeping things! To be sure there are rattlers in certain parts; but in ten years, I have never seen a rattlesnake there, though I have hunted all over the country. The most venomous thing that I have run into in Florida is some angry bee, "with weapon hot, that soaked me in a tender spot!"

(3). Florida is not the land of flowers. I know that "Florida" means "Flowering," or "of Flowers;" but, unfortunately for the poetry of the name, it comes from the Spanish "Pascua Florida," or "Easter Sunday," because on that day the Spaniards discovered the land; I know that roses bloom in December (the cultivated kind); I know that they tell unsuspecting tourists that Florida means the "land of flowers." But, from an apicultural standpoint, at least, it is not a land of flowers, but a land of trees! Of the 12 possible sources of surplus honey, two-thirds are trees or shrubs, and nine-tenths of the honey produced is from trees rather than plants. No, Florida is a land of tree honey. I do not mean bee-trees, either, though there are bee-trees galore in the State; here is a specimen of one, 8 ft. through at the base; here it is in its height, 175 ft. tall, a giant cypress and just the kind that absconding swarms delight in.

Let me run over the chief honey-bearing plants and trees in the State, and see whether you do not agree with me, that Florida is a land of tree-honey.

1. Wild Pennyroyal.—A plant of the mint family, blossoming in the southern part of the State, in January and February. Honey clear, good flavor and good body. But it is not a great yielder and does not count much in the total.

2. Tupelo, or Black Gum.—A large tree that blooms in February, pretty generally all over Florida, but too isolated usually to have much weight in the honey crop. In the northwest part, however, it is an important source of honey; it is from that section that most of the tupelo honey comes. The honey is almost clear white, of good body and flavor; would rank with any honey anywhere.

3. Orange.—This includes all the members of the citrus family—round orange, pomelo or grape fruit, Satsuma, Tangerine, Mandarin, lemon and kumquot—blooms in late February and through March. There is no more beautiful sight than an orange grove in full bloom, the air redolent with perfume, the bees toiling and moiling over the showy petals that shine like white stars from out the canopy of green leaves. The honey is light amber in color, of fair body and exquisite flavor; the bouquet of the blossoms is in it. Easily ranks as one of the four best honeys in the State. (Quote Earnest Root's opinion). You can see a specimen of this honey in the exhibit. The chief objections to the orange is that it yields bountifully only about one

year in three, taking the State over, and the honey is very hard to procure separate from other honeys coming at the same time.

4. The Andromeda.—A scraggly plant of the heath family, that grows in the northern half of the State; blooms for about four weeks in March and early April. Affords honey about one year in four, of a reddish yellow color, body good but flavor pungent.

5. Gall-berry or Holly.—A widely-scattered tree that blooms in latter part of April and first half of May. Almost always along with minor flowers, so that the honey seldom appears distinct; is not a very important source.

6. Saw-Palmetto, also called "Scrub" Palmetto.—A shrub or low tree that trails along the ground, the bushes springing up in thick clusters, about 8 feet high on rich land, with huge, fan-shaped leaves, tough and thorny. It blooms from mid-May to mid-June, and yields bountifully about every other year, but when it does you can see the honey glistening on the leaves below, so profuse is the nectar. The honey is a clear lemon-yellow color, excellent body and flavor, rich and waxy. Mr. O. O. Poppleton thinks it is perhaps the best honey in Florida. It is liked by nearly everybody.

7. The Black Mangrove, "Avincennia nitida."—A tree that grows only on the seacoast, on land that is overflowed with salt tide water. Blossoms in mid-June, and continues about a month. Yields about every other year. Honey is almost white, of mild flavor, and good body on the Keys; not quite so good on the east coast. Formerly the mangrove was the greatest honey yielder in the State or in the world, that is until the freeze of '95. It is also an extremely interesting tree for many other reasons, as Dr. Wilson can tell you.

8. Partridge Pea, or Sensitive Pea.—This is not a pea at all, however, but belongs to the acacia family. Is a hardy weed that flourishes all over the northern half of Florida, on the high pine land. Blossoms in July, August and September. The flowers are about the size, shape and color of the buttercup. The honey is light amber, flavor mild, and body good. Makes excellent comb honey. It yields very well, unless the summer rains are too constant; then both flavor and color suffer. This year there is a trifle too much rain. You can see a sample of this honey on exhibition. In the neighborhood of DeLand, my home, we cannot secure this really fine honey in its purity, for the other flowers that bloom at the same time with it, darken the color too much. It is the ONE plant that counts much in the total of Florida's surplus honey—the rest are trees.

9. Chinquapin.—A relation of the P. Pea; blooms a trifle earlier; honey dark and flavor strong. See sample on exhibition.

10. Cabbage Palmetto.—This magnificent palm grows 30 or 40 feet high, in the low hummock land, chiefly in the central and southern part of Florida. The blossoms are like huge ostrich plumes, five or six feet long, of a greenish-white color, appearing about middle of July and continuing until end of August. The honey is white, mild flavor and poor body. It froths on uncapping and easily ferments, but where well cared for is a really good article. The blossom is subject to blight, however, and so does not yield well more than one year in three or four. It yielded well in 1907 and is yielding again this year.

11. Manchineel, technical name "Manchineel hippomane Mancinella."—One of the largest and most common trees on the Florida

Keys, and found even as far north on the east coast as Palm Beach. Is also called Poison-wood, from a thick milky sap that exudes from it. Honey is not obtained distinct, because the dogwood and the pigeon cherry also blossom simultaneously with it; but the combined honey of the three is light amber, good flavor and good body. Mr. Poppleton is the only apiarist that secures any harvests of this honey, as I shall show you later.

12. Then finally we have the fall flowers. Of these the thoroughwort, the wild sunflower, the goldenrod and the asters are the most numerous; they grow all about the State, and sometimes yield a little surplus honey of amber color. Not a very important source.

Notice that of these dozen sources, eight are trees or shrubs. Hence, I say, Florida is the land of *tree-honey*. It is unique in this respect.

I am throwing this picture first on the screen for three reasons. First, because we shall all take a rapid tour of the State from northwest to south and then across the peninsula and up the east coast again, and we begin with this point; secondly, because this is a typical Floridian, a "Cracker Bee-Keeper," and thirdly, is the largest bee-keeper in the State. It is Mr. R. W. Herlong, of Ft. White. He has 900 colonies, all run for comb honey, and all secured from Partridge pea. He began keeping bees 11 years ago, with three hives in boxes; these three gave him 4 swarms and 300 lbs. honey that first year. He now has 13 apiaries from 2 1-2 to 10 miles apart. He and Mr. J. J. Wilder, near him, are about the only bee men there are who use the 8-frame hive; almost all others use the 10-frame. This shows him with a load of supers for an out apiary. Mr. Herlong is a genius at moving bees; the past year he has moved 150 colonies from 2 to 16 miles and without a single mishap. He has one apiary of pure Carniloans, one of pure Caucasians, two of Italians, and the balance of a mixture of all the rest. He is a hustler and loves hard work as a duck loves water. He is well worth knowing.

A jump of 100 miles to the southeast brings us to DeLand, the home of the speaker. The illustration shows a corner of an 80 colony apiary, the hive in the foreground being one of several devoted to rearing of queens in upper story. I want you to notice the tarred-paper case, with burlap under it; this is a scheme gleaned from the late Mr. Alexander, whereby we can keep bees at work in the upper story, even when the nights are cold. You can see the hive propped up on blocks. It is the height of swarming season, and the days are very warm, though the nights are cool. The tarred cover is set off in the middle of the day. The shade here used is that from natural pine woods. Here is a glimpse into their shady depths; excellent shade, as the tall trunks, 70 to 80 feet high afford shade by their branching tops, but allow free circulation of air below.

A ride of 150 miles to the southwest brings you to Bradentown on the west coast below Tampa, the home of Mr. E. B. Rood, the leading apiarist in that section. The view shows an out apiary. His chief surplus is from orange, palmetto, and though he has some mangrove it is not a very important factor. Produces only extracted honey. Owns 500 colonies in 8 yards. He says he could keep more colonies in a place were it not for the forest fires that do him much harm. Mr. Rood is peculiarly a sufferer from overcrowding, but I have not time to tell you of that here. Suffice it to say, that I would not advise anyone to locate an apiary near Bradentown. You can see a sample of his orange honey on exhibition.

Below Bradentown, on the beautiful island of Osprey, off the west coast, is the Island Home, and Island Home Apiary of my good friend, Mr. I. T. Shumard. His location is the most interesting one in all Florida. He has 200 colonies in 5 yards, and, with the aid of his daughter he does all the work of the yards without hiring help. This is one of the out yards. He has a string of them along the coast, each way from his home. All are in the thickest palmetto hummocks, and he produces beyond doubt the finest grade of palmetto, and the purest in Florida. This shows his ant-proof honey house, over the water, near his home. He is getting a fine flow from Cab. Pal. this year. Here is a giant swarm at his place. Mr. Shumard rears early queens for the A. I. Root Co., and good mating is assured by his island location. Produces only extracted honey, and uses only 10-frame hives. Forest fires do him much harm. Came to Florida 13 years ago, and in that time he tells me $5.00 would cover his cost for doctors' bills for himself and family.

A flying leap brings you across the State to the southeast coast and reveals to you Mr. O. O. Poppleton, of Stuart, Florida,—the prince and pioneer of Florida bee-men. He is standing before his honey house at Stuart, Florida. This shows his 80 colony apiary on the south fork of the St. Lucie River, near Stuart. Here is a 100 colony yard on the north fork of the St. Lucie River, about 4 miles from Stuart. He has about 300 colonies in 6 different apiaries, part of them on the mainland and part on the Keys. Still practices migrating with about half his colonies to the Key Largo for the Manchineel honey in February and March. This shows him on his launch of 12 horsepower and the lighter attached, just starting with 80 colonies for Key Largo, 175 miles away. Here you catch a glimpse of him passing Palm Beach, Florida, on his way to the Keys. You can see the Royal Poincianna Hotel, Flagler's great wonder, in the background. Here, on a rather poor negative, you can see the hives just landed on Key Largo, not yet straightened up nor leveled up, just as they were put ashore. This shows him waiting inside the Keys for a storm outside to calm down, previous to the return trip to Stuart. The top of the lighter is covered with follisl, shells, sponges, coral and sea anemonæ. Eight thousand pounds this year, 28,000 pounds this time last year.

Another flight of 175 miles to the north will bring you to the home of J. P. Case, the veteran queen breeder of Port Orange, Fla. This shows him holding the frame with his best breeding queen; his adopted son, Leon, is in the background. He has kept bees in Florida for 24 years, 20 of them as a queen breeder. He figured largely in the pioneer days of Florida bee-keeping, and is still a prominent figure there. He controls 200 colonies and 500 nuclei, using the 10-frame L hive. He produces only extracted honey. This shows his large honey producing apiary, under a scuppernong grape trellis. He is one of Nature's noblemen, and as modest as a girl.

I wish I had time to show you glimpses of the apiaries of Mr. W. S. Hart, of Hawk's Park; Mr. Harry Mitchell, of the same place; of Mr. Shelden, of New Smyrna; or Mr. Geo. A. Van DeVoord, at Daytona; or Mr. Chas. Harris, at Holly Hill; or A. F. Brown's

apiary, at Harwood, Fla., all leading bee-men, and all on the east coast, near the Halifax and Indian River sections. But time forbids. I must , however, halt on the little island of Coronada, Fla., just below Daytona, to take a peep at the little apiary of Mr. H. C. Longstreet—not because he is a specialist, for he is not that, having something less than 100 colonies; but because he is descended straight from a "Bee-Line." His father, Cornelius H. Longstreet, came to Florida from York State 27 years ago, bringing 30 hives of bees with him. Settled at Mt. Dora, north of Lake Apopka, in eastern central portion, and after 7 years there, left his son in charge of the home apiary, and migrated with 50 hives to the mangrove section on the coast. He moved his bees by rail, wagon and boat, without loss. Reaped a fine harvest from mangrove and then moved them back. This he did for three years, and then established an apiary on the island on the coast, where he later moved all his bees. He was obliged to clear off a place large enough for his hives, so dense was the tangle of scrub palmetto and low bushes on the island. Bears, ants and mosquitos held supreme rule there then. So troublesome were the ants and the bears that he was forced to build a bee-house, here shown. I want to show you this bee-house, because it is a type of an institution that is vanishing in Florida, being the only one that I know of at this time. Many a lively time did Mr. L. have as he sat out nights with his rifle, watching for the bears from the hummocks. I want you to notice the double nailing on these shingles of the house, here shown; the lower row of nails he had to put in to keep the bears from ripping off the shingles; and you could still see the marks of their claws on the shingles, made in their efforts to get at the honey. I show you this to give an idea of the ant-proof structure. It consisted of 16 concrete pillars, with a zinc shelf, one and one-half inches wide, running around the pillars, half way from the ground; these troughs he kept filled with cotton seed oil. The boards lifted here are guards to keep the rain and the flying bees out of the oil. They are lowered when in use. I might add, that all his surplus bees he now places outside and finds that they do as well as inside, if kept strong. This shows Mr. L., the son, inside the house. The hives are in double tiers and numbered inside to correspond with the numbering outside.

No account of bee-keeping in Florida would be complete without some reference to the conditions before the year 1895, and the migratory bee-keeping practiced then. Florida bee-keeping has had its golden age and its tragedy. Along in the '80's many bee men living in localities having only orange surplus, or only palmetto surplus, or perhaps orange *and* palmetto, were then in the habit of moving their bees, by wagon, rail or boat, to the east coast, into regions where the mangrove flourished. This is another view of the black mangrove to which we have referred before. This truly wonderful tree gave results, that are still the wonder of the apicultural world, never equalled before or since. By migrating many apiarists secured a double or treble harvest. To cite one case as illustration: Mr. A. F. Brown, then of Huntingdon, would secure a crop of orange honey; then he would move to the coast to a hummock and secure a yield from palmetto; then again, he would migrate to the low salt lands where the mangrove thickets, as here shown, made inviting fields for the bees, along the Hillsborough, Indian and Halifax rivers. (When

we speak of rivers, here, we mean the inland arms of the sea, on the east coast.)

Previous to the year 1904, there had been a succession of good years, and '94 was a culmination of them all. Bee-men still point back with wonder and regret to the "phenomenal year" of 1894. That spring the bees built up earlier than usual, weather was warm, and hives were two stories and full in both stories by the end of the orange bloom. May 16 honey was coming in from scrub palmetto at a lively rate, and extracting from that source was begun a month earlier than usual. Mr. Case says, "I extracted from 40 colonies and then moved them 13 miles by wagon and boat to the mangrove thickets, on the Indian River. By July 3rd, we extracted 2,500 lbs.; 2 weeks later, 3,000 lbs. more, and by the end of the season, 1,500 lbs. still—making an average of 420 lbs. honey per colony for those moved, and 300 lbs. per colony for those not moved." Those situated near mangrove without moving reaped a golden harvest. Mr. Mitchel, of Hawk's Park secured 600 lbs. from his best colony, on scales, 15 lbs. per day being no uncommon gain. His bees averaged 380 lbs. from mangrove ALONE, without any mention of the earlier honeys. That year honey was not counted by pounds and gallons; cases and barrels were hardly mentioned; when bee-men spoke of their yields, it was "How many TONS have you?" Bees were at a premium, and their owners told of the "big things" they were going to do the next year. But, alas! for the "next year." Winter came on with an ominous drop in temperature. A strong west wind drove the water back from the roots of the mangrove, and the trees froze down to the very roots. The same freeze killed orange trees back to the bud, and migratory bee-keeping was over. It has taken mangrove 15 years to come back into bearing. Last year, 1909, there was a little mangrove honey secured again in the Indian River district, the first since '94. It has now grown to a small tree or bush; what it will do remains to be seen. Formerly it stood 30 feet high, and the tall gaunt trunks can still be seen, mute monuments of those earlier days, pathetic witnesses of a day gone by—whether gone by forever only time can tell. At any rate, conditions have never been the same since.

The mangrove never amounted to as much on the west coast, for some reason or other, even though it did not freeze further south than Tampa. Among the migrating bee-men for the mangrove honey, were Messrs. O. O. Poppleton and E. M. Stover, who had their bees on the St. Lucie River, and moved them every year 150 miles to Hawk's Park. After the freeze, the migrating custom had become a habit with Mr. Poppleon, and he began moving his bees in the other direction, as we have seen, from Stuart to the Keys. His migrating is the only remaining trace of those mangrove days. Bee-men still sigh for the olden, golden glory of the days gone by.

But the deadly freezes are not the only dangers that beset the Florida bee-keeper.

"There is no rose without its thorn."

Were it not for the truth of this aphorism, bee-keeping in the Peninsula might be the Eldorado of apiculture, the bee-men's paradise. As it is, apiculture there is hedged about by as serious drawbacks, almost, as further north. To be sure, there is no wintering problem. But let me enumerate some of the "lions in the way,"

and then decide for yourselves whether the Florida bee-man has a "flowery bed of ease."

Foremost among his grim foes, stands, of course, the dreaded freezes that sweep down over our fair land like a blast, congealing the succulent saps and juices in myriad tropical plants and trees into solid frost, and leaving the land a withered and blasted heath. Such dangerous frosts come irregularly, but about every ten years, in general. Often a less deadly freeze will come in between two severe frosts. For example, '88 was a bad freeze, '95 a severe one, '99 a hard frost, and again a rather sever one in 1909. There seems to be no remedy, unless legislation can be invoked to protect our noble pines. But they have been already cut off so severely, that it will take years, even with proper conservation, to bring them back to the point where they can act as real guardians along our northern border, in Georgia and Florida.

Then there is this troublesome feature, that many of the sources of clear honey blossom at the same time with poorer kinds of sources, and the good honey is damaged. For instance, the orange is often ruined, almost, by the wild cherry. Imagine eating a cherry pit, and you can know what effect that honey would have on the delicious orange blossom honey. It is a real difficulty in Florida, in many otherwise good locations.

Even in the north, ants are sometimes a nuisance. In Florida they assume the proportions of a real menace. Not so much the little black fellows, as the big red ants, the "Bull-dog" ants, nocturnal in their habits. These are a *curse*. Honey houses have been devised and abandoned; none are ant proof, if I may except that one of Mr. I. T. Shumard, already shown, The foe, like the political grafter, is always present and always alert. Rotting tree roots, and hollow stumps are the favorite hiding places of these marauders. They love honey as dearly as do bears. Their usual method of procedure seems to be strategic in its nature. They first lodge a portion of their forces under the hive bottom, under the supports or the alighting board, or even behind a tight fitting division board. Then, on proper occasion, these advance forces are joined by the whole host of ants; a simultaneous attack is begun on the colony selected for operations, all along the line. Preferring a hold on the wings of the bees, they are not particular, even snipping off a leg, a head, or severing the thorax and the body. Their pincers are like iron. The bees resist bravely at first, but when once attacked by a large force of ants (and ants never engage in any but large numbers), the bees soon become discouraged and give up the fight. The only prevention is strong colonies. But how about the nuclei? The problem is harder, but even here the only secret is to keep even the nuclei boiling over with bees, and to make the entrances to their hives no more than a three-fourths inch auger hole. Even then, now and again, a nucleus will be destroyed. Strong colonies, with eternal vigilance on the part of the bee-man, will do wonders. Poison laid near their runs, kerosene and bisulfide of carbon in their nests will help.

Another serious danger lies in the forest fires. The pine woods and the hummock lands are burned over by the cattle men every year to make the grazing tender and green for their roaming herds; these fires often do untold harm to the bee-men, not only destroying

at times hives and bees and outyard fixtures, but more especially by burning over the pasturage of the bees. Mr. Rood says he could keep many more bees in a year were it not for the forest fires. All apiarists suffer from them; it is a heavy burden.

The months of June, July and August are the rainy season. Should these rains be too constant, the honey crop is damaged in quantity and quality. The blossoms of the palmetto, too, are especially subject to blight, if there is too much rain.

Again, in queen rearing the dragon fly, or mosquito hawk, is a pest. Many young mating queens are destroyed on their wedding flight. The trouble is much worse some seasons than others, and so far I have never heard o fany remedy for the evil. Year before last they were a great burden; last year not so bad.

Of course, robbing and moth are always menacing dangers. They are worse south than north because the summers are much longer.... .....to say nothing of the exorbitant express and freight companies that charge us all they dare....."and then some!"

I wonder if you still think that *any* Tom, Dick or Harry could make a success of "Bee-Keeping in Florida?"

This lecture was followed by another on "Hawaiian Bee-Keeping." by Dr. E. F. Phillips, of Washington, D. C. This was exceedingly instructive and interesting. The meeting then adjourned and became the guest of the Philadelphia Bee-Keepers' Association, which entertained them with choice refreshments.

SATURDAY MORNING SESSION, SEPTEMBER 10.

The meeting was called to order by the President.

The Auditing Committee reported that the accounts were examined and found correct. On motion it was ordered that the Secretary-Treasurer be authorized to secure needed books and blanks to keep a correct system of accounts.

Motion was made by Mr. Selser that the next meeting be held in the fall with a summer meeting at Reynoldsville, which was carried.

Motion was next made that the President appoint a committee of three on Foul Brood Legislation. Carried.

The next motion called for the President to attend meetings of local associations as the official representative of the State Association.

Another motion authorized Dr. H. A. Surface, H. Hornor, Penn G. Snyder, L. B. Huber, and Samuel Gochnauer to represent the association at the meeting of the National Association at Albany, N. Y.

A paper on the "Production of Special Flavors" was read by F. G. Fox.

Special Flavors or Varieties of Honey.

By F. G. Fox.

The successful bee-keeper must be ever wide awake and whether the honey flow is long and slow or short and heavy, he must have everything in readiness to make the most of it while it lasts. This necessity causes him to become a close observer of nature and not the time of the first blossoms and be guided by them when he can expect a good flow of nectar, or a flow strong enough for the bees to store

surplus honey. He must also note when the flowers are fading and not put on too many supers that the honey may practically all be finished up. He well knows that to do the right thing at the right time spells "success."

My bees generally begin to rear brood during the January thaw, if the weather is open for some weeks to come they get through with the brood O. K., but too often winter returns with all her rigor and they are not able to maintain the required temperature and lose their brood; then when the next thaw comes you will most likely find the queen and a small quantity of bees in another part of the hive, and it requires good weather and careful attention if you can save that colony at all. Soft maples come in bloom quite early and stimulate brood rearing. Sometimes they begin to bloom by February 22nd, but these blossoms are generally frozen and brood rearing does not profitably begin till the middle or latter part of March. We have quite a number of species of soft maple and their period of bloom extends over several weeks; then follows the hazlenut, pussy willow, sugar maple, dandelion, and fruit bloom. These flows frequently overlap each other; some of them come parallel; sometimes the dandelion bloom comes right with the fruit bloom and at other times it follows it. Then follows the raspberry, blackberry, locust, white clover and bass wood, which generally ends the white flow for this time. About the middle of July the buckwheat flow begins and generally lasts till about the middle of September. The corn blossom sometimes yields an immense amount of pollen at this time. Following the buckwheat flow, we generally have a fall flow from golden rod and aster. Having roughly sketched the main part of the honey flora, we are ready to take up the special work of producing special flavors of honey.

I am frequently asked how many kinds of honey the bees make? My reply is, as many as there are kinds of flowers yielding nectar. But to explain why we do not have honeys of all these different flavors is a much larger question and one which we will now consider.

First, we must remember that the bees consume an enormous amount of honey in brood rearing. Just how much I do not know as we have no data on this subject, but I feel pretty certain that the amount consumed by a normal colony during a good season when brood is reared continuously for six months or more would not be far from two hundred pounds. Now I well know that this may seem like a prevarication to many who have not been making any observations along this line. But here is a simple experiment that all can try at little cost and it is a means of producing some fine extracted apple blossom honey. I hit upon it rather accidentally last spring and do not consider it complete in all the details. There is no reason, in my mind, why it will not work, and by using it we can produce any special flavor of honey that we desire, providing there is a fair flow of it at a time when no other flowers are yielding nectar. The plan is simply this, at the beginning of the apple bloom remove the queen and practically all the brood from one or more of the best colonies in the yard and fill the brood nests with *clean drawn combs.* It might be advisable to give them a small amount of brood to make them feel at home. Of course, they will begin at once to build queen cells on this,

but that is of little consequence as the flow will be over before she will begin to lay. Now if the weather is at all favorable, you will be greatly surprised at the rate the honey accumulates in the brood nest. When the flow is over the honey should be about all ripe and the most of it sealed before extracting. How to deal with the unripe honey will be discussed later. While I believe the above is worthy of a trial, at least on a small scale, the apple blossom flow is too uncertain and the weather too unsettled at that season of the year to recommend trying it on a large scale. Perhaps some better method can be devised but let us get back to our main flows.

It is only when we have an abundance of one species of blossoms and the atmospheric conditions are favorable that we get a flow that is worth anything in surplus honey. In my locality we generally have two flows and frequently a third one that we can count on as worth while. They are clover (whether the bees at this time are working on white, alsike or red clover does not make much difference). Most generally the alsike alone yields honey and when there is no other coming in from other sources we get a superb article that is the best of all the honeys gathered. If this flow is late to begin, it often happens that the bees also work on catnip, linden, and sweet clover. While this mixed honey is not bad, still it does not have the delicate aroma peculiar to our clover. Not unfrequently we have a flow of honey dew honey, better named bug juice, for the latter name describes its source; this is always dark with us and depending upon the source from which it was gathered it often has a bitter twang which can be smelled in comb honey when it is brought near the nose, and this flavor impairs its value. It should never be sold as honey, for if it is, a customer getting hold of it will find that one section will last the family an entire winter, and no one will care to come back for some more honey. Last year our white honey crop was ruined by this bug juice.

Our second flow is from the buckwheat. As this honey is dark in color and has a splendid flavor of its own which is well marked, a little white honey or honey from other sources mixed with it will not do it any harm but it is advisable to keep it as pure as possible. At this season of the year there is practically nothing else for the bees to gather honey from and all goes well unless the flow is too prolonged and runs into the next one.

Our last flow is the golden rod and aster which comes in bloom simultaneously and extends over practically the same period of time, so their honey is inseparable. It is a beautiful light golden or straw colored honey and has a splendid flavor which cannot be confused with other white honeys. The wax which the bees secrete at this season has a golden yellow color unlike anything we have except when the dandelions yield honey freely.

As the bees stop brood rearing at this season of the year the most of this delicious honey goes into the brood nest for winter stores. Sometimes it granulates quickly but generally it is so heavy that it is difficult to extract even if unsealed. Some authorities claim that this is a poor article to winter bees upon. With us it does not do any particular harm, for while the honey stored in the brood nest may not be ripe and therefore not sealed the bees generally consume the

major part of it before the winter settles down for keeps, which is generally about Christmas time.

Now, to produce a special flavor of honey we must divide the honey flows. As these flows are very spasmodic and somewhat uncertain, more can be accomplished along this line by producing extracted rather than comb honey.

In some localities where the locust and linden abound it is practically impossible to keep these flows separated from the white clover. Howsomeever some years the locust is through blooming ere the clover begins, and the clover is finished ere the linden opens. But these are points we can never count on.

Now, if you want to produce the cleanest of honey with the best flavor, it is imperative that only *bright, clean combs* that are free from dust, disease scales, or old larvae cocoons be used to store honey in. One writer, in a recent issue of *Gleanings,* insists that only virgin combs be used, that is combs drawn from full sheets of foundation and never before used. However, if you have the combs which have the qualities I have just described, your product will be ahead of the average. Many bee-keepers try to excuse themselves for using old brood combs for extracting purposes by putting up the argument that it makes no difference in the quality of the honey if it is taken from old combs.

Mr. Fowls, an Ohio expert, says it does not make any difference if the combs are not too black. Now, do you not see that while he arguing in favor of the old brood combs, he has condemned them with his own words. Now, if these ''too black'' combs are not fit to use for extracted honey, then we have the right to induce that any brood comb used, does, to a slight extent, deteriorate the color and flavor of the honey, even if it is not to the same extent.

When the cost of working wax into foundation is so small, and about two pounds of wax can be secured from the combs which can be replaced with one pound of foundation, there is no excuse for any good bee-keeper to use filthy combs when trying to produce fancy extracted honey of the best quality.

If you think that the bees are the acme of perfection in cleanliness, I would ask you to select one or more sections of white honey and melt it up. By letting it cool you will have a small quantity of wax on the top and the honey underneath it. But is that wax perfectly clean? No, far from it. Where did the dirt come from? The same is true in melting cappings, you will either have to skim the scum from the top and scrape the residue from the bottom of the cake of wax when it is cooled or strain the whole thing while it is hot. What I wish to deduce is this, if by melting up this beautiful honey and cappings a lot of foreign element is gotten together, which we call dirt, is it not reasonable, if we could see it, that there would be a lot of dirt in the extracted honey thrown from brood combs?

Another point which we must not overlook is the pollen content of the honey. Pollen as you know tastes bitter, and when there is an excess of it in the honey it certainly impairs its quality. While the bee-keeper cannot prevent the bees from gathering pollen there are some things he can do to prevent an excess of pollen in his extracted honey. He not extract from pollen logged combs which are generally

taken from the brood nest, and frequently have some brood in them and are therefore objectionable on that account.

We have a heavy run of pollen from the corn blossom, and the pellets then seem to be more loose than usual and more difficult for the bees to pack away. The bottom board is often covered with numbers of these pellets. He can generally get his white honey off before the corn pollen comes.

Now let us look briefly at the extracting part of the work, for it, too, is very important in producing a fancy article. The extractor is a great blessing to the careful bee-keeper, but in the hands of a novice or don't-care bee-keeper it may be the bane of the industry, and the trade can be ruined by putting a bad article on the market.

Of course, green honey should never be extracted. While unsealed honey as a rule is spoken of as unripe and therefore unfit to extract, this is not always true. This year when the white honey flow ceased the bees gathered very little for three weeks and what little they got went in the brood nest. In the meanwhile, the unsealed honey was thoroughly ripened and where the cells were nearly full they were sealed up, the unsealed honey was just as good in quality as the sealed.

Should it be necessary to hustle off the white honey to make room for the dark flow, the unsealed honey will still be green, thin and watery, and will certainly impair the quality of the honey if mixed with that which is sealed. This being true the best thing to do is to use two extractors, first throwing out the unsealed honey and afterwards uncapping and extracting the thoroughly ripened article. The thin, watery nectar which is first thrown out should never be sold as honey. It would be in violation of the pure food law and the producer would have to answer to the charge of selling adulterated honey. Besides it would have a detrimental effect upon the honey trade. [This article would be all right to be fed back, or, if it was kept in a very warm place for quite some time, it might be all right to sell to bakeries.]

Honey is very susceptible to strong odors and if left exposed where there is any strong odor the honey will taste after it. I have known comb honey to be robbed of its delicate aroma by being heavily smoked, to drive the bees from the super, with a strong pungent smoke.

If we wish to preserve the delicate aroma of our white honey, and it is worth preserving, the best thing to do with it is to bottle it up as soon as it leaves the extractor or seal it up in tight vessels. If the honey is bottled it will probably granulate either before it is sold or soon thereafter. It is best to immerse the bottles or jars in a hot water bath, up to their tops. They should be kept in the bath for an hour or more. The best temperature for the water in the bath is 145 degrees. If a higher temperature is used there is great risk of destroying the aroma, a lower temperature will do very well but then the jars will have to be left in for a longer time. Some recommend the temperature of 150 degrees F. but this is a mistake, for it will be remembered that this is the scalding point and to scald the honey would not only rob it of its aroma but probably cause other chemical changes. After honey has been thus warmed up it will remain in the liquid condition a year or more, especially if it is kept where it is not subjected to a great variation of temperature.

I believe it pays to scald out the bottles, cans or other honey retainers before using them.

FRANKLIN G. FOX.

The subject of "Feed Back" was discussed by F. Haman, of Philadelphia. This was followed by a talk on a "Home Honey Market," by Chas. Newman, of Philadelphia. C. M. Greene, of Troy, next spoke on "Legumes." The last subject was a paper on "Comb Honey," by Wm. Kernan, of Dushore.

The Committee on Resolutions then made the following report:

WE, the members of the Pennsylvania State Bee-Keepers' Association in conjunction with the Philadelphia Bee-Keepers' Association, resolve the following:

1st. That we extend our heartfelt thanks to Dr. Phillips for his presence and his helpful instructions which have aided so materially in making this meeting a success.

2nd. That we thank Dr. L. O. Howard, of the Department of Agriculture, for giving permission to Dr. Phillips to attend this meeting.

3rd. That we urge our Representatives to vote for a Foul Brood Bill and that we ask our U. S. Representatives and Senators to secure a more liberal appropriation for the investigation of bee diseases.

4th. That we thank our retiring Secretary for the able manner in which he has financed and managed his office.

5th. That we thank the members of the Philadelphia Association for the courtesy they have shown to the Pennsylvania Association by their generous hospitality.

6th. That we thank the Directors and officials of the Commercial Museums for the use of the hall.

7th. That a copy of these resolutions be sent to each of the parties named.

F. G. FOX,
HAROLD HORNOR,
W. E. FLOWER.
Committee.

Report of the
First Summer Meeting,
PENNSYLVANIA STATE BEE-KEEPERS' ASSOCIATION.

REYNOLDSVILLE, PA., July 11-12, 1911.

The first summer meeting of the Association was held in the High School Auditorium, Reynoldsville, Pa., July 11-12, 1911. It was called to order by the President, Prof. H. A. Surface, at 9 a. m. Prayer was offered by Rev. A. J. Meek, after reading an appropriate passage of Scripture. Hon. S. B. Elliott delivered the address of welcome and it was responded to by the Secretary, H. C. Klinger.

The President asked for the meeting a lively interest—that questions be asked and investigations be made for a better knowledge of the industry. "The man who follows a plow and sees nothing more than the furrow is only a machine, but he who studies causes and effects finds in his work the hand of God."

The Secretary then made a brief report of his work. This was followed by a report of the chairman of the Legislation Committee, Wm. A. Selser, of Philadelphia. He said that a bill for State inspection of Foul Brood was drawn up by the committee and submitted to the State Board of Agriculture and Horticultural Association, both of which were then in session, and was approved by each body. It was then introduced into the Legislature and after some amendments became a law. A former and similar bill was so vigorously opposed in preceding sessions while the latter passed with apparently no opposition. This was largely due to the co-operation of the members of the Association and in getting in touch with their Representatives.

Hon. S. B. Elliott was then called on for an address. He spoke of the progress made in all lines of industry in the last half century, of his experience with bees in his boyhood days and of the old and new methods of taking honey from the bees.

An opportunity was then given for new members to join the Association. All members would be assigned a permanent number by which they would be recognized. Twenty new names were added.

A discussion took place concerning the carrying out of the provisions of the Foul Brood law since the Legislature failed to make an appropriation. It was decided that the Association ask for volunteer inspectors.

AFTERNOON SESSION.

The meeting was called to order in A. M. Applegate's beautiful grove fronting his residence.

Geo. H. Rea then gave a demonstration of "Handling Hives and Apparatus." With a hive of bees he showed the best way to open it, how to handle frames and examine for eggs or foul brood. Quite a few questions were asked and difference of opinion expressed. Gentle bees are frequently lazy. Cyprians are good workers but vindictive. All around the Italians are the best workers. A good

smoker fuel is greaser waste or burlap. The best smoker holder is a pair of knees. Full sheets of foundation should be put in brood frames and frames should be wired.

Wm. A. Selser then demonstrated "How to Handle Bees for Exhibition." He showed how to handle them with bare hands and throw them on the neck or face without receiving any stings. It is foolish, however, to run risks by doing foolish stunts which are sometimes done. The secret in all exhibitions is that bees must first be placed out of their natural condition and into new relations.

Prof. H. A. Surface then spoke on "Equipment for the Amateur." A beginner should start with 3 or 5 colonies and increase his apiary only as his experience and accumulated knowledge will warrant. His preference is a 10-frame, dovetail hive, with 1 3-8 x 4 x 5 plain sections, a deep bottom board both for winter and summer, and for wintering a Hill device over the frames with a cover of cushions filled with clover or buckwheat chaff.

The subject of "Necessity and Methods of Apiary Inspection" was discussed by Geo. H. Rea. Inspection is necessary from the fact that both American and European foul brood is prevalent all over the State. He told how the disease is noticeable. European foul brood attacks the larvae before it is sealed over; American foul brood after it is sealed over. The American shows a ropiness while the European does not.

The subject was further discussed by Mr. Selser and others, giving method how to treat infected colonies. One member said that the disease disappeared after he introduced an Italian queen.

EVENING SESSION.

Mr. Wm. A. Selser was introduced and gave an illustrated address on "Some Phases of Apiculture." This was interesting throughout, interspersed with flashes of wit and humor. The air in the room was overheated and uncomfortable, the President asked the audience to step outside of the building, but an approaching storm compelled a discontinuance of the session.

MORNING SESSION, JULY 12.

The Secretary read a paper by Penn G. Snyder on "Queen Rearing"

Queen Rearing.

By Penn G. Snyder.

Ladies and Gentlemen and Members of the Pennsylvania State Bee-Keepers Association:

Am more than sorry to state that it is impossible for me to attend the meeting at Reynoldsville, which promises, from the program, to be one of the best meetings of the Pennsylvania State Association. The Secretary will kindly read my ideas on the production of better bees.

The laws of breeding are being better understood with each year's passage. Breeders are combining the knowledge they have learned by the best of teachers—experience. That the more disseminated their knowledge becomes the easier it will be to make progress. It will attract the notice of a greater number of intelligent people—it will

show the world at large what wonderful wonders have been and are being perfected for the use of mankind.

The American Breeders' Association has made it possible for anyone making a study of breeding to obtain the latest and best knowledge of the art. The work the Association is doing is invaluable to the breeders of the United States and all the world; all branches of breeding are represented among its members and correspondents.

As there is one and only *one* set of laws that apply to breeding, all classes of growing life must come under that set of laws, and what laws are beneficial to the production of better carnations are, and can be applied with like success to the production of better cows, chickens or bees, or anything that has two individual parents.

Life is one continual chain of characteristics, good or bad—and if left alone, will naturally seek its level, if it is not successful in its struggle for sustenance it will be crowded out, smothered under by the greater number of young produced by the more successfully armed rivals for life, and so disappear, leaving the better animal to take its place.

Man has stopped all this; he, by feeding and shelter, can save the weaklings, and if care, and *great* care, is not taken the standard will be steadily downward—for like produces like. To combat this man has tried to breed from none but the best of his stock, and, so the *breeder* has been produced.

The modern breeder, if successful, comes to the point where his whole time is occupied by his work and naturally he should be much better informed practically, as well as theoretically, than the man who has a series of different tasks to occupy his time and energies. So that a person making a practical study of breeding alone, should of a necessity be more able to grasp the points necessary to make the wished for advance than the man who is dabbling in a number of varied pursuits.

The early bee-keeper seeking better stock differed from the producers of other varieties of life. The usual method of the livestock breeder was to possess a valuable male and to breed him to a large number of females, and so breed up. The bee breeder was forced to start and keep his line to the female side, to propagate to and by the queen, which relatively stands in the same place as the male in the other lines of stock, because the queen can produce unlimited issue, and the drone only being fit for one mating in life.

The breeder sooner or later produces something better than has existed before. It is a business like that of a painter or modeler. You take a mass of individualities and ultimately mould them to your will by good judgment and unlimited patience, you produce in life that which is more perfect than the work of any mere artist whose colors or subjects remain lifeless and dead. The breeder moulds his subjects in life and paints his colors with the same strong vigorous power.

Unfortunately the bee, unlike other forms of life, cannot be handled so successfully; you cannot say this male and this female shall mate.

We bee breeders do not have the same hold that breeders of other forms of life possess. We are handicapped, and so, of necessity, our progress has been much slower than other forms of farm stock.

We must leave the matings more or less to chance when allowing the virgin queens their marriage flights.

It is here the breeder has the advantage over the honey producer. He has appliances to keep down and to kill all the undesirable drones or male bees, and by stimulative feeding and other methods to produce a great number of drones from the colonies he considers best to use for mating with the virgin queens.

Another point—the breeder has a greater number of queens to choose his breeding queens from. He has more time to make his selection. He should have more knowledge as to what combination will give the desired result.

All things vary. A great variation is called a sport. The Root Red Clover Queen was a sport—with bees it is next to impossible to control and continue a sport when secured, but if you can by straight line breeding secure a great yielder you have a fair chance to hold the characteristic and continue the trait in the following generations.

Heredity is the most important law breeders possess, because they can count on the progeny being in most respects like their parents. Heredity is that which is transmitted to the offspring of all past environment—the formation and coloring and life actions of the long line of forefathers—it means like produces like.

It seems almost impossible, but in only 10 generations there are over 1,000 direct forefathers, such as father and mother, grandfather and mother, great-grandfather and mother, and so on—think of it! You and each one of us have had 1,000 forefathers in the past 10 generations. So you see there must be a great number of individual traits mixed in that number—almost all life has the same mingling and doubling of causes and effects. If you have a valuable animal and it produces young, the issue has but one-half of the valuable qualities possessed by the parent; its young will have but one-quarter (1-4) and so you fall away from that which is good.

Again the breeder comes to the front. He, by careful and judicious choice, mates blood relatives in a limited degree and so intensifies the valuable traits of the family line, and so holds and protects the valuable traits from becoming so depleted by outside blood, that it would soon cease to exist as a vigorous power, but would lie dormant, overwhelmed by the combination of so many conflicting mongrelized strains of blood. There is a saying that blood will tell; and that is very true—good blood—meaning good performance—will tell a good story, and poor blood will tell one that is unfavorable.

All specimens of an improved pure strain are not necessarily superior. There are good and bad in everything, but, take *even* the *poor strain* as a whole and test it with a like number of ordinary individuals and you will see the total result will far overbalance the unimproved stock.

A honey producer frequently buys a queen, or a number of queens from some breeder of queen bees. He may find that out of 100 colonies there may be 10 hives that will give far better results than the queens bought of said breeder. He then concludes that his bees are superior to the queens bought, but just a minute—are they? He might have 10 better, 20 as good, and 60 running down to 1-2 the kind of the leading 10 hives—he should total the number of pounds and divide by the number of colonies of his own stock, and do likewise with

hives possessing bought queens. Then he will get the true result, and the answer should be in favor of the breeder, providing his bees are carefully produced by careful line breeding.

When a breeder has developed a strain of bees to near perfection his work has just commenced, for if not cared for and mated correctly it will quickly retrograde. In all life there are fewer specimens over a given average than under it, so the average must be looked to and kept up, but the good strain will develop a far larger percentage above the average than will an undeveloped strain.

I frequently have the question asked me, What is the best race of bees? I very much question if there is a best race—they all have their good traits, one may be very valuable in one locality and turn out poor in another. The treatment by the bee-keeper, the varied conditions and season, the difference in time of honey flows in different localities, all tend to make differences. All races will produce good and bad specimens, gentle and vicious, hustlers and sluggards. It is the *strain* developed from a *pure* race and bred up to a high standard that counts in all forms of improved stock and it is so with bees.

Next followed the subject "Improving Stock," by J. R. Rambo.

Improving Stock.

By J. R. Rambo.

The improving of stock is a very easy matter for any one to do that undertakes to raise queens by taking and using the most prolific queen for a breeding queen. Then the next move is not to allow drones to fly for mating purposes that are produced by queens that produce cross and vicious bees, and then kill off and weed out the poorer queens year after year. For example, I started in 1904 to raise queens for sale or to advertise for sale. I then had thirty-five (35) colonies, and had drone traps on thirty (30) or thirty-one (31) of them. The next year, 1905, I had thirty-five (35) to thirty-eight (38) colonies, and had drone traps on about twenty (20). The next year, 1906, I had from forty (40) to fifty (50) colonies and had drone traps on some twelve (12) to fifteen (15) colonies, and from 1906 up to the present time, I have been wintering fifty (50) fifty-five (55) colonies, and used drone traps on three (3) to six (6) of my hives, and to-day, or this year, 1911, I have a drone trap on but one (1) hive.

S. P. Christian led the discussion in which a number of members shared. It was brought out that the drone is as important as the queen in the improvement of the race of bees. Drones should be allowed to fly only from purest stock, and every bit of drone comb should be cut out from other colonies.

Mr. Selser then gave a demonstration on "Building up Colonies for the Clover Harvest," and illustrated the Hand System of controlling swarming. As this is done with a recently invented hive it proved exceedingly interesting.

The last subject was a transfer of a colony from an old soap box into a frame hive by Dr. Surface and the Secretary.

The Committee on Resolutions reported as follows:

Resolved, 1st, That the Pennsylvania State Bee-Keepers' Association expresses its thanks to the members of Reynoldsville, especially Mr. Rea and Mr. Applegate, who so effectively contributed to the success of the first semi-annual meeting.

2nd. That we record our expression of thanks to Wm. A. Selser, G. H. Rea, Dr. Surface, and Prof. Klinger, who labored so industriously and successfully in procuring the recent Foul Brood legislation.

3rd, That we recognize the loss to the bee-keeping fraternity by the death of that indefatigable worker, W. Z. Hutchison, the editor of the *BeeKeepers' Review,* and that we hereby express our appreciation of his services to mankind and our sincere sympathy to his family.

4th, That we extend our thanks to the Directors of the Public Schools for the use of the High School Building and to Mr. Applegate for his grove.

DR. THOS. H. LITZ,
GEO. H. REA,
REV. A. J. MEEK.
Committee.

On motion the resolutions were adopted as read.

Motion was next made to adjourn.

H. C. KLINGER, *Secretary.*

Report of the
Eighth Annual Convention,
PENNSYLVANIA STATE BEE-KEEPERS' ASSOCIATION.

LANCASTER, PA., Dec. 1-2, 1911.

The eighth annual convention met in the Court House, Lancaster, Pa., Dec. 1 1911, and was called to order by the President, Dr. H. A. Surface, at 10.30 a. m.

The call of the roll was answered by 21 members at the first session. The minutes of the preceding session were read and approved.

The report of the Legislation Committee was made by Wm. A. Selser, stating that an excellent bill for the eradicating of foul brood by a system of apiary inspection had been passed by the Legislature but unfortunately the appropriation had been cut off. The movement made for volunteer inspectors had met with approval among the members as well as the endorsement of Secretary of Agriculture.

The address of welcome was delivered by L. B. Huber, of Landis Valley. In the course of his remarks he spoke of one of the pioneer associations, The Lancaster County Bee-Keepers' Society, and read a letter from Frank R. Diffenderfer, who was a member of that organization, as follows:

The Lancaster County Bee-Keepers' Society.

Thursday, Nov. 30, 1911.

DEAR MR. HUBER:

In compliance with my promise to you yesterday, I went over the early files of *The New Era* to-day to refresh my memory concerning the Lancaster County Bee-Keepers' Society, which existed in this county about 35 years ago.

My earliest knowledge of the Society and my connection therewith dates from Saturday, May 5, 1877, on which date I attended the meeting, and reported the proceedings. The meetings were held at the Black Horse Hotel on North Queen St. At that time the late Peter S. Reist, a well known farmer of Lititz, was the president. Such he continued to be until the Society went out of existence in 1880. This was a semi-annual meeting, the Society meeting only twice each year, although in the following year the meetings were held quarterly on the second Monday of the month.

As the files of the *New Era* date only from the spring of 1877, I have no means of determining when the Society had its origin. The minutes of the meeting in May, 1877, indicate that it was in existence at least the year before. I believe 1875 or 1876 was the time of its origin. About a dozen members were present at that first meeting attended by me. At other meetings as many as 16 or 18 attended.

Among the gentlemen frequently in attendance, and evidently members, as they took part in the proceedings, were John Huber, Treas., Pequea; John G. Rush, Pequea; Joseph Huber, Martic; D. M. Huber,

Martic; J. F. Seldomridge, J. F. Schaeffer, Tobias Seachrist, Manor; Samuel Erb, Warwick; John Metzler, West Earl; Levan Wenger, Earl; F. C. Pyle, Drumore, and others.

As with many other organizations interest in time began to flag and the attendance frequently was limited. In reporting th eproceedings of the meeting held on Oct. 8, 1877, I took occasion to use the following language: "Although the Bee-Keepers' Society has 38 members on its roll, no more than six were present at Monday's meeting. We are unable to account for this. The study of the busy workers is certainly as interesting as tobacco growing or curing, yet scores of members attend the meetings of the latter organization while not more than a corporal's guard can be got together at our meetings. The subject is certainly not beneath their notice, for it requires a far higher degree of intelligence to understand the nature and processes of bee culture than to grow an acre of tobacco. We hope when the Society next meets the old-time interest will be shown in the proceedings by a better attendance."

The leading spirit of the Society was Mr. J. F. Hershey, of Mt. Joy. He attended every meeting, was vice-president, and a very competent apiarist. Mr. H. H. Myers was an early secretary and the writer of this brief sketch later served in that capacity. The discussions took a wide range and nearly all the more prominent questions relative to bee-keeping were discussed. Frequently lengthy essays were read and the report of the proceedings often occupied several newspaper columns or more. Often interesting statements by individual members were made. At one of the meetings, Vice-president Hershey reported having raised 200 queens, 100 of which were sold at $1.50 each, the entire lot realizing $250.

Interest in the Society kept waning to such a discouraging degree, that sometime in 1880, the Society discontinued holding meetings. Very few of the members are living to-day.

The subject of "Story Management" was taken up by Geo. M. Steele, of Philadelphia, Pa. In his humorous vein he gave his experience in apiculture and told how to manage the hive and colony as to secure a large crop of honey. He said in part:

Story Management.

I am placed on this morning's program under the head of "Story Management." Now I will say every year there are thousands of tons of honey that goes to loss and hundreds of tons in your great agricultural county of Lancaster. Now as to Story Management, I will have to digress a little and say if we don't have bees we don't have story management. I would say to get bees and have bees the whole problem of story management hangs on the wintering. After bees have come through a hard winter in good condition and the fruit bloom is on and supposing that you have wintered your bees in two stories, eight or ten frame hives, you proceed to examine carefully and all queens who have filled the upper body with brood, and some in the lower body, place a queen excluder between same and keep queen below. In about fifteen days after doing the above, make another examination and if queen has fairly filled lower body with brood, hunt for her and take her and two frames of hatching brood, place in an empty body full of comb under two upper bodies,

with excluder between, and about June 20th I would place another body full of starters or drawn combs over bottom body, giving queen access to both. In this way of manipulation you will never have any swarms and always honey, provided bees are strong enough to store the crop when it is on. The same can be done in running for section honey only I would advise using alternate shallow extracting frames, never leave queen have access to only one super, that being the first to brood. After that keep queen below honey board. I have produced enormous crops of honey with small number of hives by using care and judgment to know just what my bees were able to do in reference to heat and just when the crop was on.

AFTERNOON SESSION.

The meeting was called to order by the President at 2 p. m.

Dr. L. M. Weaver, of the Philadelphia Bee-Keepers' Association, asked for a motion for individual subscriptions to cover a balance of expenses of the Legislation Committee. The balance aggregated about $40. The motion was made and the members cheerfully responded.

Secretary-Treasurer H. C. Klinger then made a brief report, that the present membership was 189 and this should be increased to 200 at this convention. During the year the increase was thirty-seven new members. The financial report is:

RECEIPTS.		EXPENDITURES.	
Cash from former Treas.	$ 26.75	Postage	$ 12.97
Dues from members ...	119.50	Dues to Nat. Assn.	71.00
		Express	.30
Total receipts	$146.25	Printing	13.12
		Ledger	.40
		Expenses of Secretary to Reynoldsville meeting.	11.31
		Total expenditures ...	$109.10
		Bal. on hand	$ 37.15

The report was accepted and the Secretary's expenses to Reynoldsville meeting ordered paid as in account. The President appointed an Auditing Committee, consisting of Dr. L. M. Weaver, H. P. Faucett, and F. G. Fox, which examined and approved the accounts.

Rev. Calvin Fassold, of Williamstown, read a paper on "Bee-Keeping for the Professional Man."

Bee-Keeping for the Professional Man.

By Rev. Calvin Fassold, Williamstown, Pa.

Such a vocation is a business implying two professionals. Always call the one in the hive *the* professional, and the other *a* professional and only getting into the business. Once from the grinding rounds of monotony it was 40 acres and a mule, then 40 feet and a hen, but now 40 inches and a bee.

First our impersonal professional man should be "born again" into the large sweet kingdom of Outdoors. He should be at all times patient yet ever persevering to think God's thoughts after him. He should and can slough off that professional malady: The B-b-bees, blue Monday, blues on the brain, bottom in his pocket and brass on

his cheeks. If at times the honey patch lies across the bridge of his nose he must yet keep sweet. He should have grace, grit and gumption enough to know that in all the art and phenomenon of beedom the half has never ben told. Whether, therefore, for fun or for profit he recreate in bee-keeping he must not only endeavor to be a proficient, practical master but of a docile, teachable disposition, for nature has no secrets for an inverted atrophied brain. Let him always remember that the first professional has been on the job long enough to have an unquestioned priority. If the spirit and attitude is taken: you will and you won't, you kin and you can't, you'll be switched if you don't, you'll be switched if you do, then give the business a good letting alone for you will be "stung" in and at the end.

If then he has attention, some knowledge and a little grace he is ready to purchase somewhere in the open market from one to five colonies, or, better still, spend some time with a practical bee-keeper. Let him be a large reader in bee literature. The Agricultural Department at Washington and many experimental schools publish and distribute much valued information which may be had for the asking. The major part of beemen must longer live in tents of how and why. This literature blazes the way and we naturally follow the gleam. Of some of these writers who have the scribblers' itch we would suggest: let the scribblers scribe, but let us by trial and experiment proscribe some scribblers. Read everything coming your way upon the subject and about the business. Have attention. Get more knowledge, for to know that you don't know is to know. Finally get some standard bee journal and see if all the rest are right.

The Carniolans being the gentlest and most easily handled of all races might be suggested for the timid. The Italians, however, are the better and will keep it more interesting for one. They are the best housekeepers and the best defenders of their homes and rights, yet not as good in wintering qualities. The Cyprians excell in wing power and length of tongue, but are most irritable of all. Caucasians have many admirers, so have the blacks and browns.

Time with the professional man is a large factor. If he gets a good dose of beeitis he will want to keep an hundred or more colonies. If, however, his ambition is not greater than his time and educational bumps he need not pay too high a price for his tuition.

Bee-keeping demands at times chasing a seemingly good dollar after a bad dollar, but in a period of years the chase is worth the game. This rule stands at the head of our apiary ledger: When you get nothing for nothing you have nothing. Bee-keeping for the professional man is over the same beaten path of trial and experiment. He is generally a college or university born, bred and buttered man and horizons himself with many heart and mind privileges. To him in an augmented way the floral kingdom is more beautiful and interesting. Every flower that swings its golden senser to breeze, sun and storm have a message for him and his wards. He learns how Nature's whirl of golden wheels has a fitting harmony place for every cog. He is interested in temperature and rainfall of seasons prior to the year of his harvest. The robin too full for song in the fall comes out of the southland bearing him advice with a voice rich and mellowed from balmy air and sun. The blue bird with its back of blue

to the sky and its breast of brown to the earth indicative that the elements above and the abiding earth will soon be at peace. Yea, what is he not interested in? The farmer, the true chemist of the soil. The flora. The weather. He learns how that three thousand years before the first sugar refinery was ever built, this little chemist in his own laboratory and by his own process has stood the *true* professional sweet-maker unapproached and unduplicated by any man or men on the rounded earth.

There is moreover for our professional man a social ethical study. Is our bee a colony, an herd, a flock, a mass of units or a community? Or is it not rather the best automatic governed social organized democracy known on earth. There are from 30 to 80 thousand bees in the normal hive. They are all producers with vested rights in property. They have enemies hence society is necessary. The communistic and not the competitive exist and society therein is classified along industrial lines. No titular head therein stamps a foot against any one as Frederick the Great used to do in the city of Berlin and say: "The damned race."

In bee communistic life each unit does the right thing at the right time with out command or correction, there is no vice or crime. In short the colonized bee has already that to which man in tears and crying is moving and must finally come.

Moreover they are mathematicians by instinct which is animal intelligence. In the art of cell building, materials, space and strength are economically conserved. As constructing engineers they know or endowed with the truth that the circle is the stronger but space is lost, as a square but it lacks strength, as an equilateral triangle but it lacks utility. The hexagonal, combining the virtues of all three with none of their defects, is used in cell or comb construction. The old Greeks called Mr. Bee "apons"—no feet. Our Latin word "apiary" growing out of the Greek conception, is a misnomer, unless that his hands are also the feet of this busy-bee- buzzer.

The Mt. Teacher said of the flowers: "They toil not neither do they spin; yet, I say unto you, that Solomon was not arrayed like one of these." "Was not arrayed." First he was arrayed from without but the flowers from within. "They toil not," that is they have no hands. God speaks through them with a tongue that never slips. They speak the same language at the funeral bier and marriage altar—the same in a hovel as a palace and if only one flower men would make pilgrimages to it, build a shrine around it and pour out affection and oblation in its presence. How mute yet how eloquent! And dare we say any less of the flowers and honey professional whose problems we yet dabble at as little children, whilst beedom is a kingdom the half of which has never been told?

The President then made an announcement that those wishing to take the examination for Foul Brood Inspectors could do so in another part of the room during this session. Five members took and passed the test.

Penn G. Snyder, of the Swarthmore Apiaries, then spoke on "Selection and Breeding."

Selection and Breeding.

By Penn G. Snyder.

Members of the Pennsylvania State Bee-Keepers Association and Visiting Friends:

I am pleased to see so many new faces among the regular standbys of the Association. It is always a pleasure to hear something to our advantage. It is also a pleasure to tell how to benefit others. That pleasure I will endeavor to accomplish. They say an American's pleasure is usually enhanced by a well filled pocket book, and the Gospels teach that a man who causes two blades of grass to grow where one grew before is doing the will of the Creator. Now, I wish to show you and prove to you that is what the more successful breeders are accomplishing to-day and have been doing so for the last 50 years among the domestic class of live stock.

I suppose you all know there are certain laws which govern breeding. They seem to be as sure to bring about results which can be almost if not absolutely foretold. The old saw, that like produces like, is so near the truth that the modern breeder makes use of that law as the corner stone for the building of his edifice of living growing life which by his efforts is becoming more and more valuable to the world of mankind.

You have all heard that pedigreed stock will give better results than grades or common scrub stock. How many of you truly believe it. It is a hard thing to prove in black and white so that every one can see at a glance that the very best can only come from a family which has been carefully watched over and mated according to the trained judgment of man who not only depends on his judgment for his livelihood, but, as a rule, who has pride in his work, and integrity in his dealings. Who looks upon his stock as a part and parcel of himself—more to him than anything else—in fact it is his good name. It is what he has spent years to produce and when one spends years of one's life in perfecting a thing he looks after it with jealous care.

The *American Breeders' Magazine* published an article entitled "Selection through Advanced Registered Records" which. to my mind, is one of the most valuable comparisons so far tabulated on live stock. The following figures and comparisons are taken from a study of the 3,070 animals admitted to the Register of Merit of the Holstein-Friesian Association for the year 1910. When the Register of Merit was first started, naturally, all cows were from parents who were not tabulated in the Register. Soon, however, the sons and daughters of the first cows admitted were, if able to pass the test, admitted, until the cows of 1910 wer composed of

Both sire and dam in the Reg.	1,196	39%
Neither sire and dam in the Reg.	710	23%
Sire in Reg.	770	25%
Dam in Reg.	394	13%
Total	3,070	100%

The requirement is that a cow must produce 12 lbs. of buter fat in 7 days. Now, if we increase the requirement 50% we have the following table which shows undoubted results of the Registered stock over those not so born:

Both sire and dam in the Reg.	584	52%
Neither sire or dam in the Reg.	117	15%
Sire or dam in Reg.	380	33%
Total	1,081	100%

This shows that to produce something over the average it is almost necessary to go to the cows having both parents in the Register, as 52% have both parents in the Register while only 15% have neither parent so registered.

If we go one step further and ask 100% over the requirements, it again very noticeably shows the value of the registered stock.

Both sire and dam in Reg.	123	73%
Neither sire or dam in the Reg.	5	3%
Either sire or dam in the Reg.	40	24%
Total	168	100%

This gives us 73% of the cows having both sire and dam in the Register, with but 3% to the credit of the unregistered stock. This shows the chance of getting an Advanced Registered heifer from stock outside the Register is but 3% out of a 100, while the Register stock should produce 73 or more out of every 100 animals passing the 100% advanced test. Thus we see exemplified the old saw "that blood will tell."

The above tables show but one side of the family (the females). Nothing is said about the ability to produce the average number of good strong offspring. The two following tables will show the number of offspring credited to parents having more than one offspring in the Record:

Reg. cows having 2 or more daughters in Reg.	1,076	54%
Cows having 2 or more daughters in Reg.	923	46%
Total	1,999	100%

This shows that of the cows with two or more daughters in the Advanced Register, 54% themselves have records while 46% have none.

If we double the requirement and make the number of daughters four the chances are about 3 to 1 that both sire and dam will be found in the Advanced Register of Merit.

Reg. cows having 4 or more daughters in Reg.	122	71%
Cows having 4 or more daughters in Reg.	50	29%
Total	172	100%

The most telling table is the following which is composed of the bulls in the Register of Merit, which follows:

251 sires with 9 or more A. R. daughters, 23% of all in Reg.		
Both sire and dam in Reg.	145	58%
Neither sire or dam in Reg.	31	12%
Sire or dam in Reg.	75	30%
Total	251	100%

112 sires with 15 or more A. R. daughters, 13% of all in Reg.		
Both sire and dam in Reg.	75	67%
Neither sire or dam in Reg.	6	5%
Sire or dam in Reg.	31	28%
Total	112	100%
43 sires with 20 or more daughters in Reg., 5.1% of all in Reg.		
Both sire and dam in Reg.	31	70%
Neither sire or dam in Reg.	0	0%
Sire or dam in Reg.	12	30%
Total	43	100%
14 sires with 50 or more daughters in Reg, 1.8% of all in Reg.		
Both sire and dam in Reg.	12	86%
Neither sire or da min Reg.	0	0%
Sire or dam in Reg.	2	14%
Total	14	100%
5 sires with 75 or more daughters in Reg. 0.6% of all in Reg.		
Both sire and dam in Reg.	5	100%
Neither sire or dam in Reg.	0	0%
Sire or dam in Reg.	0	0%
Total	5	100%

These results are very significant, for, in the first place, out of the 833 bulls registered it will be noted that 28% have 9 or more daughters also in the Advanced Register and that 13% have 15 or more daughters. It is very noticeable how the percent. of bulls with both sire and dam in the Register increases as the requirements are raised:

If the requirement be 25 daughters the percent. would be 70.

If the requirement be 50 daughters the percent. would be 86.

If the requirement be 75 daughters the percent. would be 100% of the bulls that were registered and not one that was not.

Now it must be remembered that registry does not necessarily mean that the animal is of pedigreed stock, but I think all the Advanced Registered animals would be pedigreed in the strictest term.

The Advanced Register contains a record of performance which enables all to know the high producing from the low producing animals, which can be discarded and only the high producers are used for propagation. In this way the maximum production of the race is steadily raised.

We frequently hear it stated that it is impossible to go beyond a certain point in breeding, or building, or speed, but each high record is being broken as the years go by. No breeder will go on record and state that the top notch has been reached for he has constantly seen the best records broken, and in reference to cattle it has been proven that they have increased the number of producing cells as the cows have increased in their capacity in giving milk so has their body kept pace enabling her to do so, and to still do better which goes to prove that Creation is not yet finished.

Now the above applies to bees as well as cows, but unfortunately we bee-keepers have no Register of Merit, and we cannot so far use

our own choice of males, nor can they ever serve more than one female, so we must look more to the female side for line breeding.

As the queen can produce innumerable drones and as each drone is a son of the queen the question arises—has the drone one or more fathers, and if so, why?

To make a possibly typical case—you have a very fine queen, which has mated with three different drones, her colony produces an excellent yield of honey, so you conclude to use her as your breeding queen the following season.

Now, let us see what you have—a queen mating three different drones means that she will throw daughters from three different fathers. We will say you raise 100 queens from your breeder, and you conclude you have a predominance of the blood of the breeding queen, and you naturally conclude that they are from but the two strains—the father and mother. But here is the trouble—you have three fathers possibly from three different hives of bees, so you really possess instead of two you have four forefathers to start with, from possibly four different strains of bees.

Now, then, the 100 queens raised from the breeding queen will throw drones in whose blood may be any one of the three drones, as the queen is practically both father and mother to the drones she produces; so instead of having two strains in the yard you have four.

These facts naturally do not make the lot of the queen breeder any easier. You can readily see the queen breeder has to contend with laws that the breeder of ordinary farm stock has no conception of and no need of studying.

The queen breeder who is dependent on his work for a livelihood is not likely to make the advancement that is wished for at the present price of queens. At $1.00 per queen it is impossible for anyone to give the care necessary to put out the best of stock. In other words—it is necessary to sell about 1,250 queens at $1 each a year to clear $1,000, which is not considered a very large income at the present excessive cost of food stuffs. Now, if the price were $5.00 each, the queen breeder would be able to sell a less number of queens to give the same monetary result and the breeder could give greater time to the production and testing of the queens he would send out. It would also give the breeder more time for study and experimenting.

You may say perhaps that you do not see your way clear to help pay for another's study and experimenting. You are doing so now and paying a big price for it. Think what it would mean if a strain could be secured that would produce but 5 lbs. over the general amount of honey that is ordinarily produced on an average. The amount the breeder would secure for his work would be infinitesimal to the sums the bee-keepers at large would secure.

In the production of seeds the U. S. Government and the State Experiment Stations have produced seeds that have increased the general average 3 to 10 or more bushels an acre, which means millions of dollars to the farmers of the country with practically no increase cost in the production of the crop, and with about the same expense of labor.

A small improvement in the ability of the bees to secure a larger yield of honey would have the same relative effect to the bee-keeper.

When you realize it, the best price obtainable for a queen bee is

ridiculous when compared with the prices of chickens which bring as much as $1,000, while farm stock frequently brings as much as ten times that amount. Not one of these birds or animals can produce in a year's time but a very small fraction of fertile eggs or young that a queen bee can produce. Think of it—4 to 5 thousand eggs in 24 hours, all fertile, with sting attached.

In closing, I think you will agree with me that it is necessary to look to the breeder for advancement, and it would be infinitely better if it would be possible to get a sum of money subscribed to have some noted breeder devote his time, with no thought of daily expenses, to the production of a better, more vigorous, gentler, and longer lived honey bee.

Wm. A. Selser, of Philadelphia, then spoke on the new National constitution. In view of the fact that the new constitution differed from the old, particularly in State representation and membership fee, some might be inclined to object to it and refuse to remain members of the National Association, thus compelling the State organization to withdraw its support. He explained the benefits individual bee-keepers derive from it and that through the instrumentality of the National an additional appropriation of $5,000 was made by Congress to the Division of Apiculture at Washington. He urged that every member support the National Association.

A Committee on Nominations was then named consisting of Messrs. Selser, Rea, Beard, Greene and Shirk.

The rest of the afternoon session was taken up in general discussion. A running fire of questions and answers took place.

How early in spring should hives be opened? Faucett said hives should be looked after about March 1 to see condition of stores. If scarce a section of honey should be laid on top.

How about giving full frames of honey? No, a better plan is to pump empty combs full of a half honey and water syrup and put them in at the sides of the hive.

Steele would open any warm day in spring when they fly.

How late in fall may hives be opened? Depends on weather. May be as late as November 1. Be sure colonies have lots of honey and plenty of young bees.

Tillinghast wanted a large clustering space above the frames, large enough to hold a quart of bees. The Hill device was not large enough.

On putting them out of a cellar should they occupy former stand? No, not necessarily. Steele said they will go to their old place. Rea said put them out at night and they can't find it. Greene keeps his bees on the roof as it gives them a better start to get off to the field.

EVENING SESSION.

Meeting was called to order by Vice-President Beard.

The President, Dr. Surface, delivered his annual address and spoke on "Bee Diseases and Apiary Inspection." He said that contagious diseases are known to almost every bee raiser in the State. He said that it is just as important for the State to suppress these diseases among the bees as it is to suppress any disease of cattle. He said that in some section of the State thousands of dollars worth of bees and products are destroyed annually by bee diseases.

The speaker considered that it is very important that the State take up the work of bee inspection and demonstrate methods of cure of the various diseases. He said that a number of persons had taken the examination for bee inspectors and he said that he hoped that the next Legislature would appropriate funds by which expert inspectors could be employed. One act accomplished during the past year by the bee-keepers was to gain representation on the State Board of Agriculture. A plan for next year embraces a series of co-operative experiments in feeding, wintering and pasturing bees. A number of spring, summer and fall meetings have been arranged for the different sections of the State for the practical demonstrations in methods.

The Committee on Nominations reported and the following officers were elected:

President, Dr. H. A. Surface, Harrisburg.
Secretary-Treasurer, Prof. H. C. Klinger, Liverpool.
First Vice-President, H. K. Beard, Lebanon.
Second Vice-President, C. N. Greene, Troy.
Third Vice-President, Geo. H. Rea, Reynoldsville.
Member of State Board of Agriculture, Wm. A. Selser, Philadelphia.
Alternate, Chas. S. Swanson, Philadelphia.

Geo. M. Steele then discussed "Relation of the Queen to a Large Honey Crop." He said that to a large degree the crop of honey depends on a good vigorous queen.

Dr. L. M. Weaver then spoke on "City Bee Keeping."

City Bee-Keeping.

Its Drawbacks, Pleasures and Profits.

By Dr. L. M. Weaver.

I regret that the officers of this Association saw fit to place my name on the program, and even at that selected a subject on which I fear I am entirely unfitted to present anything that may be amusing or profitable.

Were I to give my own experiences, my ignorance would fill volumes; my knowledge can be placed in a very small compass. I cannot give the experiences of my city bee-keeper friends for if I did they would be friends no longer. So under these circumstances I must draw upon my imagination which will be very short.

I have been interested in bees now for about eighteen years, mainly because my wife and I enjoy the varied experiences and knowledge acquired in handling these very interesting creatures. We have passed through some very pleasant, which, to be sure, were profitable years, when our capital in stock (bees) was doubled and our original investment in cash came out as profit. Also the lean years, when weather conditions prohibited the industrious critters from gathering more than barely enough upon which to winter; and other years when as this foul brood depopulated our small yard to such an extent as to make us feel like abandoning even this small hobby.

The drawbacks or inconveniences to which city bee-keepers are put are mainly that of location, as naturally they are not near the fields that produce nectar, and my friends report that in many instances they have secured honey flavored as candy makers do their candy,

and even containing the coloring matter. Others report that the smoke stacks of large buildings, manufacturing plants, railroad locomotives, etc., interfere with the flight of the bees. While others report their bees crossing wide rivers as the Delaware and travelling eight to ten miles and thus gathering large quantities of the finest grade of honey, even though located directly alongside of smoke stacks.

On the other hand for one who enjoys nature and nature's works, no industry, fad, hobby, or fancy, I believe, furnishes such a variety of mental and physical recreation as the keeping of bees within city limits. The climbing of ladders or stairs to roofs, the securing of swarms in an out of the reach place, plus the bee stings, a cure for ennui, furnishes physical exercise not to be secured in any of the first class gymnasiums.

The constant change of conditions of any hive, and a city man with his few colonies will always note them, gives mental recreation and relaxation from daily cares to be secured in no other way.

However, to be serious for just a moment, my experience in bee-keeping (city) has been of such a pleasant and profitable character that I unhesitatingly recommend it to my friends. I have had as few as one colony and as many as eighteen, but have obtained my best results with about ten. In the section of the city where I reside we are close to the meadows or lowlands, which, with the character of the flora, produces a large flow of honey in the fall. We never expect any surplus in the spring, but a sufficient flow to build up our colonies and produce what increase we may wish to make, and have our colonies very strong by August 20, when our fall flow begins and lasts for from six weeks to two months depending on the time of killing frost. We average from one hundred to one hundred and fifty pounds of extracted honey to the colony, for no bee-keeper has any excuse to have weak colonies by that time.

To the city bee-keeper the keeping of bees, to be sure, must be merely a diversion, or pastime, or fad. We make good bee cranks. We see in our hives unheard of conditions which certainly disappear before our friends can get to see them. Among us we class some of the most notorious bee supply men, honey dealers, queen rearers, foul brood bacteriologists, and other ists and logs too numerous to mention.

These remarks are presented more to place the subject before you for discussion than to give you any new information, and we hope you will ask questions and disagree with us.

A discussion then followed. Surface asked, How often would you advise requeening? Steele—It depends on the work of the queen—every two years as a rule.

Member. Why do some colonies in spite of a dearth gather a large crop?

Selser. It depends on the economy of the hive—on the number of bees working under the direction of the queen and on others doing nothing but consuming. If we knew this ratio we could solve the problem exactly.

Steele. The greater the number of bees that are hatched before the 15th of May the better the field force as these are hard field workers and are dead by June 25. Bees early hatched produce the honey.

Selser. We never consider that the average colony consumes in brood rearing about 60 pounds of honey between May 1 and July 1.

Dr. J. H. M. Cook, President of the New Jersey Association, then addressed the meeting. He said, "If you want good honey, send your bees to New Jersey and if we want a good time we come to the bee-keepers of Pennsylvania." To succeed it is necessary to appreciate our calling. We must study our location and adapt ourselves to it. Bee-keeping is an occupation that brings higher thoughts and desires. He invited the Pennsylvania members to attend the meeting of the New Jersey State Bee-Keepers on December 23.

The question of the next place of meeting was brought before the members. Invitations came from Philadelphia and Harrisburg. A motion was made to accept the invitation from Harrisburg, which prevailed. The time and place of the summer meeting was left to the wisdom of the Executive Committee.

The President then appointed a Committee on Resolutions consisting of J. R. Rambo, L. B. Huber and Wayne Shilling. Meeting adjourned.

SATURDAY MORNING, 10 A. M.

President Surface was in the chair and called on Dr. B. F. W. Urban, the author of a recent publication, "Dreaming on the Conestoga," and upon invitation read several of his poems.

Representative Hibshman, the framer of the Foul Brood Bill, was then introduced and made some timely remarks.

"Honey Conditions of 1911 and 1912" was then discussed by J. R. Rambo and others. The year 1911 was unfavorable and no certain predictions could be made for 1912. Cook said there is no rule to go by. Steele said the heaviest flows are usually following a year of drought. Drought with moisture following regulate growth of clover. So look for a heavy flow. Fox said three poor seasons are usually followed by a good one. Nature has a way of resting. Surface replied, "Next year is leap year and queens will be busy. This is auspicious of a busy season.

E. S. Hacker, of Ephrata, then read a paper on "Sweet Clover, Its Habits and Merits."

Sweet Clover, Its Habits and Merits.

E. S. Hacker, Ephrata, Pa.

"Having read so much of interest regarding sweet clover, I decided to give it a trial to see whether it equals the glowing claims made by the writers. I had a patch of ground containing about two acres infested with Canada thistles, which had not been plowed for about eight years, which grew up to weeds and June grass and dandelions; on this patch I sowed ten pounds of sweet clover seed of the white variety, without any previous preparation of the soil, I simply sprinkled the seed over the surface and left it take its chances; this was in June, 1906.

"In due time the plants appeared and grew luxuriantly in spite of the drought which overtook the crop. These I left reseed themselves for four years and that produced a fine stand of thick clover.

"In 1910, it came up so thick, it was an impenetrable mass shading

the soil and choking out weeds, the average height was about eight feet when in full bloom.

"Imagine these two acres of sweet clover with a root growth of about twelve inches or more into the soil, the roots open the soil to allow the moisture to soak in and in autumn when the plants are through blooming they die and the fleshy roots decay and supply humus into the soil, and during the winter the top or stalk decays and leaves a covering on the soil thus holding the moisture, which followed the roots into the soil.

"As a soil enricher it has few equals; as sweet clover belongs to the legume family, it obtains the nitrogen from the air and stores it in the nodules which are born on the roots, thus helping to enrich the soil.

"After growing sweet clover for four years the soil becomes very fine in texture and very easily handled, I have taken up some soil for a cold frame and sowed to lettuce and a remarkable growth resulted without any manure or fertilizer.

"As a drought resister there is no question for when pastures were suffering from drought sweet clover was green and growing and furnished pasture for the cow which was staked in the field and after feeding some time on sweet clover it increased the flow of milk and I noticed the butter was of a richer color, it could not resist a drought were it not for its root growth penetrating the subsoil.

"As a weed eradicator, I think it also is useful as I noticed the Canada thistles could not make any growth in the dense mass of sweet clover. Sunshine could not reach them hence they only made a feeble growth; June grass was also choked.

"The past summer I fenced the field and turned in hogs in order to destroy the thistles in a shorter time. The hogs at first hunted out the dandelions and when the pasture was getting short they took to the sweet clover and pastured on that until there was not a stalk a beautiful white lustrecmfwypshredmfwyshrdcmfwyshrdcmfwypm left. I noticed while they were pasturing on sweet clover their bristles took on a beautiful white lustre and they grew quite plump on it.

"I do not consider sweet clover a weed, more than the other clovers we are familiar with for they grow where we sometimes do not want them—for instance in a strawberry patch; if you are not careful in the course of a few years you will have a clover patch instead of a berry patch, hence sweet clover should not be regarded as a weed. I think farmers who class sweet clover a weed have not studied its habits and its value. I am sure, however, there is no bee-keeper who calls it a weed.

"The seed can be sown in spring if the hulls are removed. I would not hesitate to sow at the present time but with the hulls on as that is its natural way of self-seeding. The seed drops from the plant during the latter part of September or October and the rain and snow and the freezing of winter soften and decay the hull hence during the warmth of spring the seed can easily germinate.

"It grows in most any soil. It seems to have a preference for hard clay, as it will grow along a wagon rut or any tramped path.

"Sweet clover is valuable to the eastern bee-keepers as it furnishes

honey just as the white clover ceases to yield, thus prolonging the honey flow a few weeks.

"I have found it a sure and dependable yielder of honey, and if the weather conditions are favorable you will always find bees working on it. It is indeed a beautiful sight to see the bees busily engaged gathering honey from the sweet clover for there are sometimes as many as 15 to 20 and often more bees working on one stalk.

"In the height of its blooming season it seems as though every bee from the apiary were in the field working on the blossoms, for you can hear their merry hum for quite a distance.

"The honey is of a light color with a flavor characteristic to the plant itself and I think it is equal if not superior to the white clover, it also yields pollen in quite a large quantity of a greenish color.

"I have tried to describe my actual experience with sweet clover, and I am sure I have not tested all the uses or qualities, for I have still much to learn regarding this valuable so-called weed.

"Any bee-keeper who has seen a field of sweet clover in bloom and inhaled the sweet scent arising from it together with the continual humming of the bees, I am sure his heart is filled with joy, for words cannot describe the sight; it must be seen—and seeing is believing."

Pres. Surface said that by mowing it when it comes to seed a new growth will start and blossoms can be prolonged until frost comes. Cook asked whether stock would eat it. Yes, when cut early. It is valuable not only as a soil enricher but as a forage plant since it is rich in nitrogen.

W. S. Kilheffer then spoke on "Comb or Extracted?"

Comb or Extracted.

W. S. Kilheffer.

It largely depends upon the tastes of the bee-keeper as to which kind he should run his bees for. I prefer to work for extracted and will now proceed to give my reasons for the same.

I need not worry about preparing supers each year which means quite a good bit for a busy man. After you have the supers for extracting filled with comb you are fixed for many years, while the bee-keeper who runs for comb must go over this same work each year and when the time comes to put supers on the hives he is worried, oft-times not knowing just when to put on so as to be in time to get best results and not have his sections soiled. On the other hand I need not worry in the least if a colony seems to fill up with bees, brood and honey a little before the main flow is on, I simply slip a super between a zinc queen excluder and cover, then all is done until the flow is on. Then for the first time work that requires some time must be done. Then I begin at one end of the row of hives and if that one proves to be full of bees and brood the two outside frames are, as a rule, heavy with honey. These I remove and put in a hive body, and if the remaining combs are filled with sealed brood I generally remove two frames and fill in with frames of drone comb or frames filled with foundation. Put the frames of brood and honey in hive body and fill with empty comb. Put on queen excluder and put combs removed from hive body on top and you can now rest assured that

swarming will not be though of by that colony and so they go to work and then my work is done until they need attention.

As to room, and that is from five days to eleven months according to weather conditions, each one must know that. Learn it by observation and experience. A very nice thing about removing supers when run for extracting honey is you can remove when it suits and no sections to be soiled by being left on a little longer. No sections to be scraped. None to be fumigated. No half filled ones to be emptied either by extracting or by the bees. I simply remove, extract, put back on the hives and let bees clean and take care of until I put them in winter quarters. Then remove and stack up right close to the bees and the honey in sixty pound cans. No more worry about it and when it comes to the fine point the financial part, bees store about another time as much in extracting frames ready built as they will in sections. I can never get more for one pound of comb than I can for two of extracted and in fact not as much on an average and have more labor and expense connected with raising it. I have now given my reasons why I prefer running for extracted rather than comb.

Some speakers said climate and locality has much to do as to whether one should work for comb or extracted. Dr. Weaver said any person can get extracted but only a bee-keeper can secure comb honey.

C. N. Greene, of Troy, then spoke of "Swarm Control." He said the beginner in bee-keeping must learn much by experience. He will either have a lot of bees or an amount of honey. It takes time to learn to keep bees to have a hive overflowing with bees and yet have no swarming.

"Requisites for Success in Bee-Keeping" was the next paper read by I. F. Tillinghast, of Factoryville.

Requisites to Success in Bee-Culture.

By Isaac F. Tillinghast.

In bee-keeping, as in all other farm operations, it is always the maximum production which affords the profit. Therefore whatever can be done to increase the yield, without incurring a corresponding expense, are the vital points most worthy of our attention and study.

If it costs a farmer $25.00 to plant, cultivate and harvest an acre of potatoes, and the yield is only fifty bushels, worth fifty cents per bushel, it is plainly to be seen that there is absolutely no profit in the transaction; while if by spending but little more in improved seed, fertilizers, and better methods of cultivation, he can double or treble the resulting product, he may then have a fair showing of net profits.

That this principle can be and in fact is being applied to honey production, as well as to wheat, corn and potatoes. I have most positive proofs, and in this paper I propose to touch briefly upon the essentials which must be woven into our system of management in order to accomplish this most desirable result, a maximum yield.

Perhaps in few, if any other lines of rural industry has greater progress been made within the past few years, than in the production of honey, and the various manipulations necessary to most profitably

reach that end. And I venture the assertion that comparatively few people, even including the majority of those who keep a few hives of bees, fully realize the possibilities of profit which may be made, and in fact is now being made, by a few, through modern and up-to-date methods of handling "the little busy bee."

In order to present this subject most intelligently, I will divide it into four general heads, viz: The Man, The Field, The Bee, and The System.

THE MAN. First, then, the man, or woman, who is to attempt this undertaking. It is far from every individual who has the natural capabilities or qualities necessary to succeed in bee-keeping. While it is a vocation which requires far less attention throughout the year than do chickens, or in fact any other kinds of live stock, yet there are times when the closest attention to details is required and the timely performance of little things, or their neglect, will determine the ultimate success or failure of the whole undertaking.

Enthusiasm, born of a full belief in your ability to succeed, is one of the prime requisites to success. Perhaps in no other line may be better shown the truth of the old adage, "as a man thinketh so is he."

When you fully realize the fact that certain results have been accomplished by others, naturally no smarter, or favored by no greater opportunities than you, and you have made up your mind that you *can*, and that you *will*, accomplish a desired end, you are in a fair way to overcome all obstacles and gain your coveted prize; if you start the race in a doubting frame of mind, your doubts will cause you to neglect the timely performance of details which will ultimately bring your expected failure.

I have asked the question of men who I knew were very advantageously located to successfully keep bees, why they did not give it a trial, and find that it is nearly always through a fear of stings that they object, usually declaring that they think the bees have a natural antipathy towards them, and that they will go out of their way to sting them, while I, they think, can go among them with impunity.

The facts are that I do frequently get stung, but that I have already had my system inoculated with the poison to such an extent that I am now immune to its effects. I may now receive twenty or more stings on my hands or wrists in a day and will scarcely feel them, and no swelling or soreness follows.

Besides if I do feel like objecting to the ordeal, I have learned how to put the bees into such a condition before undertaking to handle them, that they will not endeavor to sting anyone.

Perhaps you may be able to swallow a mouthful of tobacco juice or smoke and not feel its effects, while a small portion of such in my stomach would make me deathly sick. Again, I have colonies of beautiful golden Italians which have been bred to a point of gentleness which enables me to open their hives without any demonstration of irritability on their part. And yet the timid may quickly doff a wire cloth bonnet, which is cool and comfortable, and affords perfect protection to the face, with very little obstruction to the vision. I mention these facts to show that the above objection to embarking in the bee business may be almost entirely overcome.

So, while bees may be kept on a small scale as an avocation or side line, by almost anyone, but few will get any profit out of them unless

they have contracted a strong enough touch of the disease known as "bee fever" to enable them to give their bees some attention and study and at least try to do the right thing at just the right time.

To keep the required interest and enthusiasm in your business you should not only possess one or more of the standard handbooks published on the subject, but subscribe for and read one or more of the bee journals. Three are now published in this country, and all are so good that you cannot afford to miss any of them.

And of course you will join your State Association and attend its meetings.

THE FIELD. Probably second in importance to the right qualities in the man, as a requisite to success is the field in which he is located. And while it is true that there is a great difference naturally in the different locations or fields, there are, I believe, few locations where bee-keeping may not be profitably carried on if conditions are studied and a system of operation adopted which is in keeping with your surroundings.

A long study of the subject, and close observations made through quite extensive travel, covering at least 25 different States, has forced upon me the belief that in most localities the natural honey flows occur in far greater abundance, though perhaps of shorter duration, than most people imagine. Our whole country is covered with such an amazing variety of natural floral production that it is indeed hard to find a locality in which there is not something coming on that for a time supplies a far greater quantity of nectar than all the bees, even in the most overcrowded or supposedly overstocked field can or do collect and save, for bear in mind the fact that these secretions will not wait to be taken care of, but that if each individual flower is not visited many times a day by a bee, and the collections are not thus very promptly made, evaporation takes place, and that opportunity passes, never to be recalled. A few days later perhaps these flowers advance into such a condition that the flow suddenly ceases, and then for a time, until some other species of plant or tree comes into bloom, there is nothing doing. Now it follows that in order to turn the trick, the alert bee-keeper must study his field, and be able to know in advance about when these natural flows are to be expected, and have his bees and hives in such a condition that as much as possible may be collected and saved while it may be had.

This explains why it pays to feed and breed up your colonies as early in season as possible. Why it pays to keep them as strong and populous as possible throughout the honey season. Why much more extracted honey may be produced, by seeing that a strong colony has an abundance of empty combs ready in which they may store this supply as fast as they can bring it in, and in fact why he must be "Johnnie-on-the-spot" if he expects to report a phenomenal yield at the close of the season.

Again, a naturally poor field may be greatly improved and made into an extra good one. A question which I have been studying for many years is: How may we aid Nature so as to fill in the intervals between the natural honey-flows, and thus more completely cover the season, and keep our bees working more constantly, for it is CONSTANCY that counts largely towards success in any line in our lives. The man who works steadily and earns but a dollar a day,

for 300 successive days in the year, will keep his family better than he who gets five dollars a day but one day each week.

The first article I ever wrote on the subject of bees was published in the *American Bee Journal,* under date of September, 1869, forty-two years ago, under the caption, "What We Lack." In this I called attention to the fact that, in our locality, there was each season an interval of time, usually the latter part of May and early June, between the closing of the fruit bloom and the beginning of the white clover yield, in which such a dearth existed that our most strong and populons colonies were in danger of starvation, not being able to procure enough to feed the great amount of brood which was then developing in their combs, and indeed I have since carelessly had colonies literally starve and die during a week of bad weather which prevented their bringing in anything during this critical time.

Since then I carefully watch and feed liberally at this juncture, all that are short, for much more food is needed just then on account of the great amount of developing brood.

A second similar condition exists with us from the first to the middle of August, between the close of our clover and the beginning of our buckwheat bloom, only that there is then not much brood to maintain, and the hives are better stocked with stores. I now know of localities where melilotus, or sweet clover has been sown and has spread so that it serves to almost completely cover this gap, and I will say that all things considered, I think it the most valuable aid to nature of any existing plant, where it can be made to succeed, but it is exceedingly hard to get started except on sandy or gravelly soils which are well supplied with lime.

In recent travels I saw quite an extensive strip of country near the State line between the States of Alabama and Mississippi, where for a number of years past the farmers have been sowing white sweet clover (*melilotus alba*) on hundreds of acres as a farm crop, and harvesting the product, when about two feet tall, for hay, the same as they would alfalfa, which at that stage it much resembles. And I was told that one object, or I may say the greatest object in doing this, was that they have discovered that as a soil renovator or enricher, no other plant can compare with this. Not only do its roots extend deeply into the soil, and bring up fertility from below, but it is a leguminous plant of the highest order, and has the property, like all clovers, cow peas, etc., of collecting nitrogen from the atmosphere and through the abundant nodules on its roots, feeding it back to the soil and to subsequent crops. Furthermore it had been demonstrated that through this process the kind of bacteria required to produce a thrifty crop of alfalfa, are bred in the soil, and these sweet clover crops are followed by successful stands of alfalfa. And now, incidentally, bee-keepers have gone into that country, and taking advantage of the situation, are producing some most phenomenal yields of honey.

As a rule in selecting a plant to sow for the purpose of honey production the bee-keeper should select one whose product, otherwise, is of sufficient value to pay for its production, not counting the value of the honey, of which he may perhaps secure only a portion. Among such I would recommend alsike clover, mustard, and rape, as these

may all be profitably be grown for seed. Raspberries are also very profitable for fruit as well as being great honey producers.

In proof of the statement that few if any localities are overstocked with bees during the time of their principal honey flows, I may cite the case of the late Mr. E. W. Alexander, of Schenectady County, New York, who for a number of years past has kept from 700 to 800 colonies in one yard, and upon more than one occasion has succeeded in securing from them an average of over 100 pounds of extracted honey per colony, which means over 37 tons of honey, gathered within an area covered by the natural flight of one bee in search of food. Now let me call your attention to the appalling waste which must be constantly going on in thousands of other fields from which not 37 pounds are gathered and saved, through lack of bees to perform the work. Can you state a parallel case of neglected opportunity and consequent loss of natural wealth?

THE BEE. Having now considered the requisite qualities of the man and his field, as the next most important factor in our structure we must place "the little busy bee," for surely without her aid nothing whatever can be accomplished looking toward success in bee-keeping.

As you all know there are about as many different nationalities, types and strains of bees in existence as there are of people, or of chickens, and they vary from each other about as much in their different appearance and characteristics.

In order to determine their relative value, much experimenting has been done, under the most varied environments, and perhaps no one has been found which combines all desirable qualities to the exclusion of all bad traits, to such an extent that it has been proven to be the best in all localities, in all respects and for all purposes. However it seems to be the consensus of opinion, among those best informed, that no other excels the most improved strains of the Italian race.

As hardy and persistent laborers the product of "Sunny- Italy" have distinguished themselves in the apiary as well as in the railroad pit.

I bought my first Italian queen from "Father Langstroth," in the year 1870, at a cost of $10.00, and have never regretted the investment. Since then I have procured stock from many prominent breeders, and after studying their actions and noting comparative results for over forty years, I have settled upon a strain of very golden yellow Italians, which through years of selection and breeding, with the most desirable characteristics in view, have been brought to a point of perfection which suit me to a greater degree than any others I have tested or seen elsewhere. They are very beautiful in color and markings, almost "golden-all-over," although I see it is being decided that it is "fraudulent" to sell them under that name, as the yellowest of them have a jet black tip surrounding their defensive weapon, which has not yet been eliminated, although they are nearer stingless than any other type or strain I have ever handled.

Nor, are their merits confined to beauty and gentleness of character. I often see them working freely on red clover, and on a species of small wild honeysuckle whose tube-shaped petals are so deep that our native bees make no attempt to reach its nectar. And they certainly have

remarkably long noses, as well as tongues, for an exposed piece of honey anywhere is first found by them. For years I have wintered in the open, and they almost invariably come through strong and healthy. Two years there was a visitation of black or European foul brood throughout our section, and within a few miles of our place hundreds of colonies of native or black bees succumbed to its ravages, yet I did not lose a single colony of Italians, and easily succeeded in entirely checking the disease, so that I have not seen a cell of affected brood within the past year.

My *modus operandi* was to place all the brood, of colonies which showed diseased brood, in an upper story, placing the queen with empty combs or full sheets of foundation below, and separated by a queen excluding zinc, and then if it ever begin to show below, requeening with a young Italian queen. As soon as this brood hatched above, the bees cleaned out the combs perfectly and filled them with honey which was extracted, and the combs afterwards used wherever needed.

The great importance of the queen must not be under estimated; in fact can scarcely be sufficiently emphasized. She is the source of all that is good or bad in the make-up of the colony, and through her only can desirable traits be attained or bad ones be eliminated. Of course male parentage is of great importance in breeding, but good stock in drones can only be procured through their mothers so there we must first begin and end in all our efforts looking towards improvement.

The great value of the Story-Italian bee, and the importance of securing blood of the better strains of the same, is now becoming so thoroughly understood and realized throughout our whole country that the demand for carefully bred queens is bound to rapidly increase.

The average life of a queen is about four years, but I am convinced that the average period of their maximum productiveness is much less, and it pays to requeen as soon as convenient after two or three years at most, especially all colonies whose results do not come up to your standard. If every colony in your yard would produce equal to your best, would it not more than double your profits? And would they not do so if their queens were equally strong and vigorous at the beginning of the season?

I think that my improved strain merits a distinguishing name, and that I shall christen them "Buttercups."

Their claims to superiority embrace the following points:

1. Beauty. 2. Gentleness and lack of irritation or excitement from being handled. 3. Hardiness. 4. Prolificness. 5. Keen sense of smell and ability to find and gather nectar which is beyond the reach of some others. 6. Immunity from disease, and ability to overcome such as European foul brood.

The apparently insignificant point of your being able to quickly find the beautiful golden queens when opening a hive, not only by their color, but on account of the bees remaining quietly spread thinly over the comb, practically undisturbed, when contrasted with the habit of the black bees to stampede and pile up in a corner, or make a bee-line for the head of the operator, though not enumerated above, is in itself sufficient inducement for their adoption.

In justice to the memory of the late Mr. E. L. Pratt, who also gave

us our most advanced ideas in queen raising, I will say that the foundation of this stock came from "Swarthmore."

I had as previously had as beautiful, and fully as energetic stock from Henry Alley years ago, but sting—say! they seemed to be a cross between a bolt of lightning and a stick of dynamite, and only actual experience can make one realize or believe that there can be such a difference in this characteristic.

THE SYSTEM. Having now selected our man and shown him what qualities he must possess, placed him in a good field and shown him how he may improve it, and given him the most improved type of bee, it is still important that he adopts and carries out a definite system or plan of operation.

No business will run smoothly with out system. System is as necessary to the successful operation of business as discipline is to the conduct of a school or an army. Every bee-keeper should formulate a plan of operation and fit all his paraphernalia in style to enable him to carry it out to best advantage.

First, then, naturally, comes the selection or adoption of your hive. In doing this do not overlook the great advantage secured in accepting the standard gauge, as the railroad men would say, without losing time and money in experimenting on fool ideas of your own.

What is styled as the Langstroth, 10-frame dovetailed hive, not only combines the most desirable features known, especially for the novice or beginner, but is the approved standard, and any part may be duplicated at any time by any manufacturer or supply dealer almost anywhere. And you will never be able to apprecite the full advantage of having additional supplies fit nicely into your present working stock until you have experienced the mistake of trying to work several different styles of bodies, frames and supers, in the same apiary. Equal to the advantage of a railroad company in being able to run one of their cars onto any other line, or bringing another company's cars onto theirs, is it to you in selling or buying hives, colonies or nuclei.

Each hive or colony should consist of at least two, and sometimes three bodies, all exactly alike and interchangeable, unless you do not plan for increase, and are operating exclusively for comb honey, in which case one body and two or three supers will answer your purpose.

After much experimenting I have adopted what is termed the "tiering-up" system of management, which I operate for both comb and extracted honey, for increase, for queen rearing, and as a cure, as well as preventive of European foul brood.

For wintering on the summer stands two hive bodies are used, the lower one containing the brood nest, the tops of the frames covered with a piece of burlap or carpet, under which is formed a clustering place for the bees, which is easiest done by laying a couple of empty sections so that the bees may reach the honey in the outer frames in cold weather, then the upper story is nearly filled with dry wheat- or oat-chaff packed down snugly around the edges, and being sure to leave a couple of inches of air space between the packing and the cover, which must be tight enough on top to exclude all rain and snow water, but should be fitted loosely enough to allow the damp air to escape from underneath.

While on the subject of covers I will say, that inasmuch as the best and most expensive covers from the factories are liable to soon become leaky, and require additional protection, we now make our own covers as well as bottoms, very cheaply, out of second-hand store boxes, with no attempt at making them watertight, as we keep all covered with pieces of felt roofing which act as shades and protection from sun as well as rain.

Early in the spring an examination should be made, and all colonies not abundantly supplied with stores fed with thin syrup. Many of our most successful honey producers feed anyhow in order to stimulate early and abundant brood rearing, but particular watchfulness is required during the dearth after fruit bloom and spells of bad weather to keep them booming and not lack for food for their brood. And remember that the strongest colonies are then most likely to suffer. Better not to feed at all than to begin early and then not keep it up.

As soon in the spring as eight frames are filled with brood I proceed to "tier-up," that is, raise most of the brood combs into an upper story, leaving the queen below, and filling out the lower part with empty combs or full sheets of foundation, and a queen excluding zinc between. Enough bees will remain in the upper part to feed and care for the unsealed brood, and in ten days time all will be hatched or at least sealed.

This operation gives the queen an abundance of room for laying and brood rearing goes on with great rapidity. And in most cases it checks all desire for natural swarming.

The Alexander plan of increase is to remove the upper section to a new stand on the tenth day, and give it a sealed cell or newly hatched queen, but I prefer to defer this, leaving them together until August, when the buckwheat flow comes on, thus keeping the colonies as strong as possible, and securing all I can of the earlier honey flows. Under this management as fast as the combs above are emptied by hatching brood they are filled with honey which may be extracted in greater quantity than by any other method I have ever tried.

If some comb honey is also desired a few wide frames may be filled each with eight sections and full sheets of foundation, in which the bees will begin work much more quickly than in supers, which insures some fine early white comb honey. The reason of this seems to be that the bees have already formed the habit of taking honey up while there was brood in that compartment, and they will then continue it, while with ordinary super management it is often very difficult to induce them to make a start above.

If nuclei are desired for queen rearing, a third hive body may still be placed above, starting with one or two frames of brood and honey, partitioned off on each side. This must have a wire cloth bottom to completely cut it off from the others, and after confining them for a few days, give them an independent entrance and exit on opposite sides. As these get the ascending heat from the clusters below, it will be found that a pint or less of bees in each will be sufficient to take care of a queen until she is fecundated. New sealed cells are given these as often as laying queens are removed. In fact surplus

virgins may be kept in them in cages for a week or so as to be ready to take their place without loss of time.

Now if increase is desired, after operating as above all summer, about the middle of August, or as soon as the buckwheat flow is on, we are in position to make two or three colonies from each stack, making the divisions by the same plans as are usually performed in June. At this time of year we are likely to have plenty of young laying queens on hand, and even if brood rearing is now interfered with but little damage ensues, as the young bees will then be too late in season to be of much practical use.

I find that this system gives me the maximum profit, as by its adoption I get comb honey, extracted honey, young queens, and finally from 100 to 200 per cent. increase.

Of course a few colonies containing my best breeding stock are set aside for the production of queen cells, which are transferred to these top story nuclei for the finishing process of fecundation. During the season these nuclei may be built up into fair sized colonies, by adding frames of brood from other populous colonies from time to time, and removed to the stand of some populous colony, which in turn is given a new stand, or they may be added to the others when the August division is made, but oftener they are sold and shipped away as nuclei, together with a fine young fertile queen, and then built up in the purchaser's yard. This is the nicest and safest way in which to procure improved strains of stock.

And now a word about selling honey to dealers. We do not like, and have abandoned the use of the ordinary wooden glass front cases. They look nice when they leave you, but as soon as the grocer receives and opens them, they rapidly accumulate flies, dust and germs, and the sections look daubed and mussy. We now wrap each section in a waxed paper, and place it in one of the cardboard cartons which are neatly printed in colors and sold by the supply houses. These are then placed in light boxes containing any desired number and the whole cost is about the same as shipping cases. The honey then remains strictly clean and sanitary. There is absolutely no leakage, and the dealer is saved the cost and trouble of wrapping. Besides if you are producing a nice article it is of great advantage that your name and address appears on each package. It helps you to quickly build up a reputation and your goods will outsell others. I recently sold a half ton of mixed and dark honey so put up, to a wholesale house in Scranton at 12 1-2 cents net, which had over fifty cases of whiter looking honey on hand which they had carried over from last season and were offering at the same figure.

Our extracted honey we find sells quicker and brings more when offered in small packages. We use friction top cans, one, two, five and ten pound sizes, each handsomely labeled, and carrying our name and address. Also small glass packages. Often by presenting a small glass package to a prospective customer we attract his attention and thus finally land him among our regular customers for larger packages. The first element of salesmanship is to attract attention. Then an interest in our product, when conviction follows —and *action* results.

AFTERNOON SESSION.

Dr. Urban was recalled and read several more of his poems.
G. H. Rea, of Reynoldsville, then discussed "Stimulation Feeding."

Stimulative Feeding.

By G. H. Rea, Reynoldsville, Pa.

Stimulative feeding is practiced by but a limited number of bee-keepers to-day and in fact many of our leading men and writers for bee journals claim that it is a very good thing for the average bee-keeper to let alone. The truth of this statement all depends on the man and his location. Some present in this convention perhaps will not agree with me when I say that if stimulative feeding is properly done it will produce big results and is both practicable and profitable.

Prof. Surface very aptly remarked, in this morning's session, that we ought to tell about the things that we actually do and not to theorize so much in convention, so I am going to stick to his idea along that line and tell you exactly what we practice in the way of feeding our bees, and if any differ from me let them freely say so but that does not change the fact that I am practicing the thing that I tell you about.

It depends on the man because he must use good judgment in stimulative feeding. It can be done in such a way as to work untold injury and be a decided loss, on the other hand if judiciously done will be very profitable.

It depends on the location because where there is a long drawn out or slow flow previous to the main flow, not enough for super work under ordinary conditions but good for building up, it might not pay.

I say, might not pay, for even there it might be possible to get the bees in such a booming condition previous to this slow flow that the honey would be stored in the supers rather than used for brood rearing.

Best time to do stimulative feeding is in the fall. This is preferable to spring feeding, if we lay either aside, but I practice both and with the best of results.

Begin to fed a little just when the fall flowers are disappearing and the bees show signs of robbing but before the queens have ceased to lay. Keep up regularly for a period which will depend on the kind of fall weather that we have. If the weather continues warm I sometimes continue to feed until November 1st. The idea of this late feeding is to obtain a large force of young bees for the winter cluster, which any wise bee man knows is a prime essential in the successful wintering of bees. The colony composed mostly of young bees produced in October and November will breed up much more rapidly in the spring than one that is composed of bees produced in August and September, as is the case in most localities in the north where feeding is not resorted to. It is these old bees that die off rapidly in the spring and cause so much spring dwindling. I believe also that old bees are more liable to dysentery than are young ones and this is an important point.

For stimulative feeding, either fall or spring, I use a very thin

syrup—three or four water to one sugar and only feed just what the bees will consume from day to day. This is very important in fall feeding, as so thin syrup, stored in the combs, would be sure to sour and cause trouble if carried over into winter.

I do not aim to feed up for winter stores. If any colony does not have enough honey to carry it through I prefer to give it sugar cake. Three pounds will winter quite a strong colony. I winter altogether in the cellar and sugar syrup stores are a dangerous proposition unless well sealed over. Unsealed stores of any kind, in fact, are dangerous to the life of the colony wintered in the cellar.

Small weak colonies can be built up in the fall until they are fairly strong, and having a large proportion of young bees will winter well and will be producers next season whereas if left to themselves they would die out before spring.

Strong colonies can be made to boom with young bees in the fall and will keep right on booming next spring right up to the honey flow. Because they have a large force of young bees that do not die off when they take their first flights in the spring.

I begin spring feeding as soon as I feel reasonably sure that we will have no more severe cold snaps. Usually about April 15. Enough is fed to keep them busy but not enough to store any quantity in the combs, although I have had strong colonies take enough so that they would work out foundation. About one-half pint of thin syrup daily is sufficient for a strong colony. We are taking it for granted that the colony has plenty of honey stores and we are only using the syrup to stimulate.

I prefer out door feeding when the weather will permit and allow all colonies to help themselves as they will. It seems to me that when the bees get it outside it is more like a honey flow and they are stimulated to a greater degree than when fed inside the hive. Some say that when out door feeding is practiced the bees soon wear out and the loss is as great as the gain and even sometimes greater.

That depends on how it is done and conditions inside the hive. I feed in galvanized iron tubs in which the syrup is placed and covered with a thin layer of cork dust. If enough tubs are used so that the bees of a whole yard can work on the cork dust without crowding, the wear on the bees will not be any more than during a honey flow and the loss no greater and with a corresponding increase inside the hive.

The objection is also raised that when the bees get used to the out door feeders they will fly out to find them when the air is too cold or in the rain and large numbers will be lost in this way. I will admit this to be true to a limited extent, in my case, but nothing to worry about. Syrup made too heavy and fed out of doors or insufficient stores in the hives will cause bees to leave the hives in weather that is unfit for flight often times causing great loss. Such conditions never ought to exist. Make the feed at least 75% water and have sufficient stores inside the hives, so that the bess do not feel in need and there will be no more bees enticed out into bad weather by out door feeding than will go out after willow or soft maple bloom. Bees on the verge of starvation will fly out in bad weather even though not fed out of doors.

Out door feeding has to recommend it that it is a labor saver. The whole yard can be fed almost as quickly as one colony, with an inside feeder, and then not one colony has been disturbed nor exposed to robbers.

If we have four or five days of continuous feeding I find that it is not detrimental to let two days of bad weather pass without giving feed, but if longer than that then inside feeding must be resorted until weather clears up.

When spring stimulative feeding is once commenced it should be kept up regularly until the honey flow is on. Thus we can bring our bees right up to the honey flow boiling over with bees and ready to enter the supers with a rush. This is no idle tale. Yards that I treat in this way often produce almost double the early honey that unfed yards do.

Does it pay? Most emphatically, YES. But then some will say that it takes too much time and labor. Let me ask, What do we get in this world without working for it? Let the big fellows who count their colonies by the hundreds or thousands say that if they want to, but we Pennsylvania bee-keepers mostly want to get as large results as possible out of small apiaries and we must intensify our methods, and I say most emphatically that it is highly important that our colonies be very strong at the beginning of the honey flow or we are great losers.

Don't be afraid of the syrup can and the feeder. They will help you out of many a difficulty and, if properly handled will bring you big returns. Take your foul broody colonies in the fall and shake and feed. They can be built up into good strong colonies of young bees and will save you dollars in time, bees and honey next year and will remove a menace to your healthy bees at a time when it becomes most dangerous. A few days after the second shake give a frame of honey with lots of pollen, from a healthy colony, if there is no pollen to be had in the field. Without it you cannot produce young bees.

Try the outdoor plan when robbers are bad and see how things will quiet down and you can go ahead with your manipulations. It is especially valuable in the queen rearing yard or during extracting time, and while keeping the bees busy during these times of dearth it also serves the purpose of keeping up the numerical strength of the bees for the next honey flow.

Notwithstanding the fact that some of our "High Lights" are preaching against stimulative feeding, bee-keepers in general are waking up to the possibilities along this line and I am glad to see it for it is a great stride forward and one that counts.

After all that I have said I would advise the beginner to be cautious and go slow at first. Successful feeding is a problem that each one, to a certain extent, has to be worked out for himself and to meet his own peculiar circumstances and conditions. No one, not used to feeding, should jump into it in a wholesale way but should go slowly and learn well what he is doing.

"Marketing the Crop," was the subject of the next paper read by Elmer J. Weaver, of Ronks.

Marketing the Crop.

By Elmer J. Weaver, Ronks, Pa.

Producing a crop of clover honey during a season in which the clover does not appear to have any nectar for the bees, is rather a difficult proposition, much more so than marketing the crop following such a season. This being my experience the past few seasons I have not had a large amount of practical experience in marketing. We have never made any effort to retail on account of other business but have always sold at wholesale to a retailer who attends the Lancaster markets Tuesday, Wednesday and Saturday mornings of each week, and who each season disposes of a little over one ton of comb and extracted.

The extracted was sold in jelly glasses and Mason jars at 15 to 18 cents per pound for the honey, and comb at 20 to 22 cents according to quality. The only advertising attempted to sell this amount was the honey itself displayed on the market stand.

I do not think there is any grocer that sells much if any more than this quantity annually in this city, though I see no reason why a grocer with a good trade for fancy goods should not be able to sell a large quantity each season. The fault lies almost wholly with the grocer through lack of effort to push the goods, which is more necessary with the store trade than with the trade of market man, where honey shows up conspicuously among possibly only a dozen articles displayed on the stand, or even less.

In order to attract the store customer's attention, something more than a case of honey on the counter, showing a few inches of comb through a narrow glass, with a few sections standing on top is necessary. Here is where the bee-keepers' originality should come in, as any entirely new and original method of displaying honey in conjunction with the retailer should greatly increase sales, as practically all food stuffs and merchandise sold to-day is advertised extensively in some manner or other.

In planning the marketing of any new article a large proportion of capital is set aside for advertising, in some instances more than is put into the manufacture of the goods themselves. The magazines and newspapers usually receive the larger part of this appropriation. The grocer also is allowed a larger commission than the bee-keeper can afford on honey; in some instances the grocer's clerks are offered premiums for pushing the sales, and in others the town is sampled from door to door.

There is another method we often meet with that could be adopted to advantage by the bee-keeper who has a large crop to dispose of, and that is by personal demonstration in the grocery store, a method employed successfully by many manufacturers. Small cakes or any other tasty combination into which honey enters could be distributed, as well as small samples of comb or extracted honey, or any combination that you may think would appeal to the public, accompanied by some printed recipes for using honey in other ways than naturally on the table, as well as a few suggestions regarding its superiority to sugar and syrup from the standpoint of health, especially for children.

Expense, you say? Certainly it will be expensive. But will it be

more so than paying freight charges, cartage, breakage, shipping cases, and lastly the living of the commission man, which, I dare say, is many times more each season than your own. I feel sure the latter collection of expense will outweigh the former very heavily. This is assuming that you are situated reasonably near to some town or city where you could interest a good number of people in the value and palatability of honey.

Any and every method that promises publicity is used in making sales to-day. So you need not be surprised if your product which is pure and wholesome is pushed aside and such goods as sulphuric acid treated corn mixed with a little cane juice is pushed as the only thing to sweeten up young America and the remaining population, too, if you do not make as much noise about your article as he does about his.

The unfortunate feature is that the bee-keeper usually individually does not have the necessary capital to carry on an extensive advertising campaign, as that would soon swallow up the largest honey crop of any individual in the United States, if magazine advertising was selected.

The rates are apparently very high though I do not think out of proportion to the circulation. One example being the *Saturday Evening Post,* with over one and three-quarters of a million circulation, charges about $3,000.00 per page each week, with proportionate advance for smaller space. The late W. Z. Hutchison used a small space in this magazine a few issues with the result that his crop was disposed of at 10 cents per pound in 60 lb. cans.

The producers of a moderate amount of honey, say half a ton to a ton or more, can certainly do better by retailing if no other business prevents, than by shipping to commission merchants.

Extracted honey should be put up in whatever jars the producer finds by experience are best suited to his market, which I think will be the jelly glass and Mason jar, in preference to the more expensive and less useful special honey jar. Then if he lives near a town or city having a market system where the consumer deals direct with the producer, he can go on the market himself or engage a few salesmen in each market to sell for him either on commission or by outright purchase.

You will find it no difficult proposition to induce good honest salesmen to handle your goods as most farmers and truckers are glad to take up a side line to help pay their expense of market stand rent, etc.

Comb honey, of course, can be disposed of to equal advantage, and I see no reason why the sale of chink or bulk comb honey could not be made popular in this manner. Circulars could also be handed out to customers for other lines of produce, and with possibly some local newspaper advertising quite a trade could soon be established.

The more unfortunate bee-keeper is the one who does not have access to these markets and must depend on the grocers to retail his crop or ship to commission houses, but personal demonstration would be a great feature here.

There is another difficult feature to contend with. That is many people consider honey only as a luxury and do not use the quantity that they possibly would if they knew the value of it as a healthful food. Here is where an educational campaign of publicity would

greatly assist sales and that again is beyond the individual except where the customer can be reached by printed matter either through the store or market. To be effective nationally only a body like the National Association, either by assessment or contribution could hope to produce any results.

Even if a large fund could be raised it would be a question as to which channel would give best results. Some argue in favor of trade journals. This would be less expensive than advertising for the people's attention but would only reach the grocer, and then the same old trouble would remain, to have the consumer buy the goods.

Better try and educate the consumer to as for honey, when other supplies are needed for the table, instead of syrup and other substitutes; then the dealer would soon put in a stock, as any meritorious article asked for regularly will be supplied, honey especially, as there is no substitute that the salesman can say is just as good.

Another feature is the personal dislike of honey, some people claiming they do not care for it, extracted especially. In my own family of six, Mrs. Weaver and four children, I am the only one who relishes extracted, the others prefer jellies, syrup, etc., instead. They will eat comb for a little while and very soon show the preference for the old unwholesome sweets. This is a hard nut to crack and as I can't do it in my own family, am not going to suggest how you could do it for the public.

F. G. Fox, of Erwinna, then spoke on "Improving the Apiary." The center of improvement is the queen bee. A conspicuous yard should be neat. A good hive is necessary—good bottom and top. Hives should be uniform and prefers the 10-frame hive. Frames all wired. The Italian is the best all around bee. The Banat the gentlest.

President Surface next spoke on "Bees and Fruit on a Small Place." A few acres devoted to keeping bees and fruit will afford a living. These two occupations bear a reciprocal relation to each other—certain varieties of fruit need bees to perfect pollenation. In fruit it is imperative to plant such varieties that will cover the season in ripening. He then named a number of fruits in succession of season.

The Committe on Resolutions then made report:

Resolved, 1st. That we extend our thanks to the County Commissioners for the use of the Court House.

2nd. That we also thank the Honorable Judges for the use of their room.

3rd. That we thank Dr. B. F. W. Urban for the contribution to our entertainment by reading from his poems "Dreaming on the Conestoga."

4th. That we thank Hon. Mr. Hibshman for his interest in securing the passage of foul brood legislation.

5th. That we thank the local committee for making effective arrangements, and the Court House employees for courtesies shown.

J. R. Rambo,
L. B. Huber,
Wayne Shilling.
Committee.

A resolution was adopted that Dr. Hunt of State College be asked to have apicultural instruction on his experimental train.

A discussion followed concerning the new National Constitution.

A motion was then made and carried that on condition that the vote carries throughout the States for the adoption of the new constitution that the membership fee of one dollar paid by the members, shall remain in the treasury of the Pennsylvania Association.

Another motion was carried expressing thanks to the President and Secretary for their faithful services to the Association.

H. C. Klinger, *Secretary.*

Report of the

Second Annual Summer Meeting,

PENNSYLVANIA STATE BEE-KEEPERS' ASSOCIATION.

ANNVILLE, PA., Oct. 12, 1912.

The second annual field meeting convened in John B. Shope's apiary, Annville, Pa., Saturday 10 a. m., Oct. 12, 1912, with Dr. H. A. Surface in the chair.

Rev. Calvin Fassold read a portion of Scripture and offered prayer.

Hon. E. A. Weimer, Mayor of Lebanon, gave the address of welcome and made suggestive remarks. He deplored the fact that the Foul Brood bill failed to carry with it an appropriation, but urged the bee-keepers to get busy with their legislators on the question the coming Legislature.

The President responded to the addresss and spoke in substance as follows: This is the time in our history for the activity of the mind. This should be exercised in the line of bee-keeping. The season has been favorable, and there is a good start of clovers for another good crop next season. Honey production is a secondary vocation to other farming lines. Our soil is becoming less fertile owing to heavy cropping and failure to restore the fertility. The making of the soil fertile is now the greatest problem before the people of the State. A good soil will stand more drought and also will hold more soil water before it will wash. The chief element in soil fertility is nitrogen, for which we pay in commercial fertilizer at the rate of $55.00 per ton. Four-fifths of the air is nitrogen and it is the principal element of plant food. We can greatly economize if we can bring it from the air into the soil. Then we need to purchase only cheap fertilizer. The leguminous plants, such as the different clovers, have the power to draw the nitrogen from the air and deposit it in the soil. This is primarily their value. Secondarily they all produce honey—the white, the red, the crimson, the sweet clover, the vetches and the locust. A large clover plant has more soil fertility in its roots than in the top. The sand vetch contains more nitrogen in the nodules on the roots than grains of nitrate of soda of equal size. Our soils are nearly all deficient in nitrogen. So the raising of legumes will serve a double purpose, of enriching the soil and of furnishing nectar. But the mistake should not be made in cutting too soon. The plants should be allowed to stand until they begin to go out of bloom before being cut for feed.

Wayne Steiner next spoke on "Comb Honey Production," and gave an interesting account of his experience. He uses a hive without an end space and believes it helps in securing more honey. The subject was further discussed by Jno. S. Shope and Dr. Surface.

Queen Rearing.

By Geo. M. Steele.

October 8th, 1912.

To the Officers and Brothers of the Bee-Keepers' Association in session at Annville, Pa., Saturday, October 12, 1912:

DEAR BROTHERS AND FRIENDS:

You have placed me on your list to talk on "Queen Rearing." Now, I do not know why you give such an amateur as I so many bumps but wherever I go some of you big brothers insist on bumping poor little George.

In the last five years of careful study and observation, I find that the queen rearing under artificial means has been badly butchered. The great trouble with men, including my humble self, is that we imagine that we know it all. But we find that our little bee friends are away ahead of us in perfect creation. To produce the best bees, I believe is a lifetime study and a life of hard work. This year I thought that I had a perfect race of bees, and I have a good foundation for the pure golden Italian, and yet from my breeder this year, mated to pure drones, I had three queens that did not throw 99 per cent. pure golden drones, showing that a sport of black blood still exists and will yet crop out. I am beginning a little ahead of my letter to you, so I will go back to the beginning.

I find, after careful observation, that a superceded queen cell is the best cell to produce the best queens from. Six years ago, I had a superceded cell, reared in a strong, populous colony of perfect goldens, one of the most perfect queen mothers that I ever had. They superceded this queen, in fact, she was laying before I discovered the old queen had been superceded. That queen lived and produced two large crops of honey for me. She filled her hive full of brood and it was the most gentle hive I have ever seen. Last winter she died, absolutely of old age, with plenty of bees to winter. In fact, the hive got through until April without a queen. Just when she passed away I do not know, but she was six years old. Three years ago, her daughter was superceded, mated to a dark drone. I have used her for three years as a drone mother; she was superceded last month.

I could enumerate a large number of superceded queens that I have come in contact with in my yard and where the bees seem to place more vigor and fire in the feed of a superceded cell than in another. The swarming cell I would never use. But if you can find five or six cells in the hive where the bees are going right to supercede, I would advise you to cut them out and use them to increase the longevity and honey production in your race. Of course, these cells must be taken from the best young mothers.

In our artificial queen rearing, how many grievous mistakes have I made and how willing I am to admit them! I have tested all manners of producing queen cells and I have discarded all except one. That is to make the young bees do the work and do it hard and fast. I find bees long queenless become demoralized. Bees queenless for a very short time have a great amount of energy to get at everything and sting it. Now, there is just the happy medium between long and short queenless and this is the time to produce your best cells. Al-

ways 12 hours after removing the old queen the bees have settled down to a knowledge of queenlessness and they must have a new mother and they will accept anything in the way of the perfect larva to start their new mother with.

I think all the plans of the present queen breeders could be improved upon very much. It was my happy lot, in coming from Florida last May, to stop off and see a yard of bees and a man's method of producing queens in Virginia. His system seemed very crude to me at first but on close observation I found that he was away ahead of what I was doing. I had to extend my hand to him and tell him I was in the business to learn. In examining some 50 colonies of bees, and moving possibly two tons of honey, I found not one of the 50 that varied at any time. He opened the hive with his queen cells in and we found 20 cells over an inch and a half long.

Now, in producing cells, some writers say that the larva should be 24 hours old, some say 30, some 5 and various stages of ages are given. I think the larva is fed very lavishly by the nurse bees just out of the comb for about 24 hours. I do not think it is so much the age of the larva as the kind of feed given to the young larva in the queen cells that produces her bees and vigorous queens.

My aim has been and will be to produce a honey producing race of golden bees and I am sure that by careful selection, because I have tested out for eight years, we can get a better race of bees. My queen mothers for next year did produce five bodies of honey. This you and I consider fit to breed from.

Now, the next question to be handled in the raising of queens is hardiness. I have had quite a number of knocks from bee men all over the country stating that the golden Italian queen was not hardy, and that they were not long livers. As I stated before, I have had them live for six years. I have two at my yard now that are three and four years old, unless they have been superceded within the last twenty days. I consider them hardy and I think it is one of the points we should breed to as much as honey production.

Next should be gentleness and lastly color which is the hardest to hold. I have always considered that a race advertised broadcast over the land by brother bee-keepers, including myself, have been mongrels. I have only found in buying some 200 queens in the last ten years, a small per cent. were a pure race of bees. I have purchased a number of Carnolians from bee-keepers that ran from three-banders to black. I have also bought a large number of goldens and I got less than five per cent. of them purely mated. In fact, I have tried every race of bees advertised in the U. S. and in Europe and I have at last located a little spot in this great world of ours where queens are mated purely to drones that are let fly by the apiarist and they come from across the water at that. I expect to import some 50 queens from this breeder this year and I will have something to say next year and also to show. They come from Italy. This man has been raising queens over there for his own use for something like 30 years and I came across him by accident. I believe that he still holds intact the pure Italian bee.

I expect in the next few years to devote all my time and energy to this interesting subject. I hope that I have not trampled on anyone's toes present and that what little I have said will help someone

to push his or race of bees to perfection. I am sorry that I am unable to be with you to-day but I will try and attend the next meeting.

Yours truly, GEO. M. STEELE.

E. S. Hacker, of Ephrata, the "Sweet Clover" man then spoke of the value of that plant as a soil renovator, forage plant, and nectar producer.

Sweet Clover.

By E. S. Hacker, Ephrata, Pa.

Sweet clover needs no introduction to the progressive bee-keeper for he has become familiar with it through the various bee journals, for therein have appeared numerous articles treating of the plant and its value from time to time. However, there may be some who have not had the chance to come in direct contact with the plant and observe its habits and qualities. For the benefit of these and others who are interested I will give you the benefit of my observations and experience with sweet clover, which dates back to 1906.

Having read several glowing statements regarding sweet clover as a honey plant of unusual merit, and never having seen it, my curiosity induced me to purchase ten pounds of seed, and, although it was rather late in the season, I sowed the seed and in due time the plants appeared, and then for the first time was I able to study and watch the development of the plants that I so longed to know what it looked like.

The next year it bloomed and only then was my anticipation rewarded, when I saw with my own eyes, how those bees did work on the new honey plant.

It kindled my enthusiasm as the seasons have come and gone, and I no longer doubt the statements made which have induced me to try it. The longer I study it and the more I become acquainted with its habits, the more of a crank I become on sweet clover, for you know it is in close relation with a bee crank.

When sowing sweet clover seed it requires no special preparation of the soil as does alfalfa—simply sow the seed in the late fall or very early spring and the action of the freezing and thawing will imbed the seed in the soil and when the time arrives for it to germinate it will be on hand and bow to the morning sun.

It is a very robust grower and soon chokes out other plants that grow more slowly; it soon masters the situation and a crop of hay can be cut from it the first season that equals any alfalfa hay in feeding qualities.

On one square foot of ground I counted 45 plants and the average height was 48 inches, and each plant formed from six to ten crowns, all the first season's growth from seed. Now you can imagine this mass of vines above ground, but I was curious to know what was in the ground, and this is what I found: I dug up one square foot of ground and carefully lifted up the roots, I soaked the ground off the roots to expose the root system, and it is truly wonderful, the fibrous root network is all interwoven near the surface of the soil forming a real mat or sponge as it were to hold water, while the main or tap root extended about eight or ten inches into the soil.

Now, if we carefully observe these small rootlets you will discover the many nodules that grow on the roots of the clovers and other leguminous plants. These nodules, or tubercles, are especially numerous on the roots of sweet clover. In these nodules are living microorganisms which obtain the nitrogen from the air, so we are told, and store in the soil and make it available for the use of the plant. Hence sweet clover is very valuable, especially for this purpose, as it has such an enormous root growth.

Sweet clover adds much humus, or organic matter to the soil, both the decaying tops and the roots furnish the matter. There is no better plant to grow than sweet clover on any soil that is deficient in organic matter. It can be brought up to a high state of culture by growing sweet clover on it for a number of years. The soil becomes very mellow or sponge like and is capable of absorbing great quantities of water thus holding the moisture during a drought. The soil is more easily handled and worked after sweet clover reigned supreme.

For pasture sweet clover is especially adapted, as it is a very persistent grower. If cut or eaten off it sends out new sprouts which are again in prime condition in a short time for pasturing.

I am again pasturing hogs on sweet clover and they are thriving on it and they eat it with great relish the cows and horses are also very fond of it and eat it greedily.

There was much talk of sweet clover being a weed but in my estimation there is no evidence that will support such a theory. I don't think there is anyone who uses a little judgment, or has studied the plant, is apt to call it a weed, for the other clovers will often grow out of place. I think the farmers in general should give sweet clover a trial and should be taught what a valuable addition it would make to the list of clovers; even the Department of Agriculture has conducted an investigation of the plant and published a bulletin regarding it.

I have exhibited plants in various stages of growth at the farmers' institute and whenever I get a chance to talk sweet clover to any person whom I think is likely to be interested, I do so. It is a well-known fact among bee-keepers that sweet clover is a great honey yielder, and truly, it really is. It furnishes pasture for the bees through a longer season than any other honey plant we have that I know of. You can even find it in bloom at the present time (Oct. 12) and bees working on it, too. Sweet clover is really an ornamental plant. When in bloom it makes an imposing appearance by its pyramidal growth when mature, and its pure white and yellow papilionaceous blossoms and the numerous bees busily engaged in collecting the sweetness we all hold in so high esteem. Any enthusiastic bee-keeper who has not witnessed a field of sweet clover in full bloom and breathed the sweet perfume of the blossoms wafted through the air by the gentle breezes, together with the honey bees busily engaged in gathering its rich treasure, the nectar of the blossoms, is a dream yet to be realized.

E. S. HACKER.

Mayor Weimer asked: Does it grow on abandoned fields? Yes. He stated he had such fields on a hillside planted in walnut trees. Would it grow there? It is doubtful whether it would grow under such conditions. About this time came the sound of a dinner bell and all went to the dining hall in Mr. Shope's home and sat up to a feast which only Mrs. Shope knew how to prepare.

AFTERNOON SESSION.

A roll call showed 21 members present not including a number of visitors.

Mayor Weimer asked for remedy for bee stings, stating once in his experience it caused him great suffering. Wet clay, indigo, and a neutral solution of sulphate of aluminum were recommended. Penn G. Snyder recommended holding the hot end of a cigar to it just as close as endurable several times. The current articles on stingless bees received come comment and more ridicule.

Penn G. Snyder, one of the Foul Brood Inspectors, gave some of his experience. About 400 colonies in Lancaster and Chester counties were inspected and throughout nearly everyone was willing to lend assistance and the work generally meets with approval.

Question. What time is it most virulent? In spring, since colonies are not strong to clean it up. During honey flow it is less seen. A record colony that was diseased was "shook" and gave 40 pounds of surplus, while the preceding three years it failed to produce any. *Shake.*

"Bees and Poultry" was the next subject and was opened by L. B. Huber, who said that the two could successfully be kept without conflicting in attention that must be given them. W. S. Kilheffer also spoke on the same subject.

A motion was made that an offering be given to Mr. Shope for his kind entertainment. This was done in Mr. Shope's absence and the members generously responded, in appreciation of the hospitality shown to them.

Dr. Surface spoke of the relation of the State Association to the National Association.

On motion of Mayor Weimer and seconded by Penn G. Snyder and unanimous vote it was decided that the State Association become a branch of the National Association.

Dr. H. A. Surface was elected the first delegate to attend the National Convention convening in Cincinnati in February, 1913.

On consultation among the members it was decided advisable to hold the next annual meeting during the early part of the session of the Legislature.

A demonstration was then given in queen hunting and hive operation by the President and Wayne Shilling.

A vote of thanks was tendered Jno. S. Shope and family for their kind entertainment and hospitality.

Adjourned to meet at call of Executive Committee.

H. C. KLINGER, *Secretary.*

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J. J. WILDER will Tell the Readers of the Bee-Keepers' Review How He Handles Forty Apiaries

In the December Review I mentioned the fact that Mr. J. J. Wilder, of Georgia, had been handling 40 apiaries and doing it largely by correspondence, but that he hesitated to write his experiences for fear that it would sound too much like "blowing his own horn." I said I did not believe the readers would look at it in that way and for all who wished to read Mr. Wilder's article to send him a postal card requesting that it be written. The following letter was received from Mr. Wilder, which shows that we are going to get the article in an early issue of the Review.

BRADENTOWN, Florida.

Say, friend Tyrrell, you have besieged me with letters and cards from the request you made to your readers on page 479. Well, I never saw or heard of such a flood of mail. I never had any idea that you did have so many subscribers before, and too, many of them write the best letters I believe I ever received. Well, it just did me good to look over them and I wish you could have been here and went over them with me.

And now, I want to thank you for what you said and I assure you that as soon as possible I will return the favor, not only to you but your many interesting readers, who have written so many good and cheering letters to me. I declare I don't know just how to express myself over the matter, but I must feel something like a great "big-hearted" fellow feels at a good old-fashioned hand-shaking at the close of a good meeting, when the good spirit is at its best ebb.

J. J. WILDER.

In the February issue appears an article on how one man handles eleven apiaries. If you will send in your subscription to the Review immediately, I will begin your subscription with the February number, so long as the extra copies last. This means "the first come, first served." The subscription is $1.00 per year, but you had also better add another $1.00 which will give you full membership in the National, and also in your Pennsylvania Association which is a branch of the National. The Bee-Keepers' Review is the official organ of the National Bee-Keepers Association.

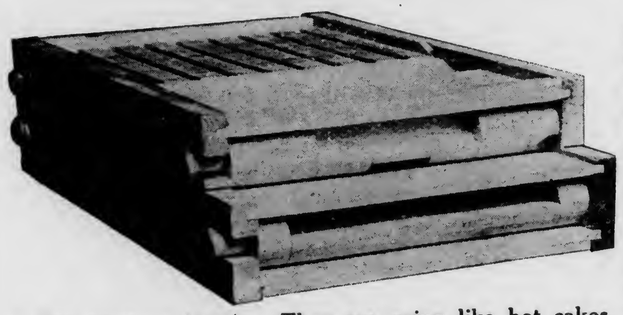
Address,

E. B. TYRRELL,

Secretary N. B. K. A.

214 Hammond Building, -:- Detroit, Michigan.

THE IMPROVED SCHAMU PATENT ROLLER ENTRANCE HIVE BOTTOM



Roller entrance bottom. They are going like hot cakes.

¶ The Schamu Improved Patent Roller Entrance gives the Bee-Keeper several appliances in one. It is compact, simple, efficient and inexpensive. It furnishes its own storage room, if the bee-keeper decides to remove one roller or another, so that there is never anything lost or get into the way in another part of the bee house. Here you have it all, complete bottom board, drone trap, feeder, ventilator, that saves lifting the hives when same are full of bees and honey. Shallow bottom for summer and a deep one for winter.

The price is reasonable, being only a trifle more than the cost of a common alley drone trap, feeder, and ordinary bottom board. This invention affords comfort, profit and satisfaction, and one swarm saved when you are not with the bees, buys several bottom boards. When you consider that when the workers fly away, you not only lose your queen, but your honey crop as far as that hive is concerned. With the patent under your hives, if they do swarm out, they come back. All the bee-keeper loses is once in a while an old queen. At the end of the honey flow you have a fine crop of honey in your supers and lower chambers bubbling over with full grown bees and honey. Then introduce a young qneen, say August 1st, or when your honey crop is over, and your swarms will be ready for winter with plenty of stores young, vigorous queens and nearly all young bees. The three main essentials for wintering well.

PRICE: $2.00, F. O. B., for Eight Frame Hive. Liverpool, N. Y.
$2.50, F. O. B., for Ten Frame Hive. Liverpool, N. Y.

PUYALLUP, Wash., Oct. 8th, 1912.

Dear Dr.:—I have just received the last Bottom Board you shipped me during our State fair, and will confess you have something of value for the bee-keeper. I have found in my trials of the different feeders, that the bottom is the best place to feed from; am satisfied to say that your Bottom Board, will do all that is claimed by its inventor and more.

Yours truly,
J. W. WARE, 5th St. N. W.

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